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NOTICES.

Our readers may probably have seen an article in the *Gas and Water Times* of the 1st inst., containing a copy of a letter addressed by the Editor of this Journal to Mr. Croll, in reference to some remarks upon him in former numbers; but they will be surprised to learn that such letter was given to Mr. Croll upon the most distinct understanding, arranged between the attorneys in the cause, that it was not to be published at all, or, if noticed in any way, it was only to be by a short editorial announcement in the *Gas and Water Times*, to be confined "to the simple statement that it is understood the action has been settled by the defendant apologising and paying the costs, *and nothing more.*" We hold the express written undertaking and agreement of Mr. Croll's attorney, on his behalf, to this effect; and yet, in the face of this, the whole letter, accompanied by the article referred to, appears in the very first number of the *Gas and Water Times* published after the letter was obtained on the faith of such pledge. We will not trust ourselves to comment upon such conduct as this—such a flagrant violation of a solemn pledge; indeed, all honourable minds can come to but one conclusion upon it. We see nothing to regret in having met Mr. Croll in so fair and candid a spirit; but it is to be hoped that the law is sufficiently powerful to afford a remedy for the return it has experienced at the hands of the other parties, and the matter has, consequently, been placed in the hands of our legal advisers, to take such steps as they may be advised under the circumstances.

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All Communications and orders for Advertisements to be addressed to the Editor, 32, Bucklersbury, London.

Circular to Gas Companies.

Certain circumstances which have come to our knowledge since we last alluded to the subject, induce us again to invite the attention of gas companies to the importance of obtaining statutory powers before they are forestalled by some speculating adventurer, or by a rival, as in the Torquay case. It is rumoured on good authority that similar attempts are projected in three or four other towns which have been named to us; and it becomes a question worthy of the serious consideration of all unincorporated gas companies in England, both large and small, whether they are prudent in trusting their future position and prospects to the chapter of accidents, in preference to securing their position by statutory enactment. Ninety-nine out of a hundred such applications would, in all probability, be unopposed; and, even in small concerns, the expenditure of a few hundred pounds will give a strength and stability to the property which will amply repay the outlay.

A calm seems to be at length setting in, after the tempestuous agitation to which the gas interest has been subjected during the last four years, the only exception to which state of repose is to be found in the difficulty the cheap-gas agitators themselves experience in strangling the monster they have called into existence, and of which a remarkable instance is to be found in the present attitude of the gas consumers in the Borough of Southwark.

The cause of Young *v.* White, which was tried on the 28th and 29th ult., has considerable interest for gas companies, and we shall give a report of the trial at an early period. The action was brought by Mr. Young, the patentee of a process for making lubricating oils from coals, against the Hydro-Carbon Gas Company, for an infringement of his patent, by converting the residuary tar from Boghead cannel, treated on their process, into oils similar in character to the plaintiff's, the novelty of whose process consisted in the distillation of coals at a "dull red heat," so as to produce the smallest possible quantity of gas, and the largest quantity of tar, from which the lubricating or paraffine oil was extracted. It was proved in evidence that when Boghead cannel was distilled, by the ordinary process of gas making, at a "white heat," paraffine oil could be obtained in considerable quantities, though smaller than when distilled by the plaintiff's process; and, as the jury ultimately found a verdict in his favour, gas companies using Boghead cannel are henceforward deprived of a large source of revenue from the residuary tar. Mr. F. J. Evans, of the Chartered Gas Works, Westminster, stated that he could obtain 15 gallons of paraffine oil from the tar of each ton of Boghead cannel carbonised at their works by the ordinary process of gas making; and, as it was proved by the plaintiff's witnesses that this oil was saleable at 4s. per gallon, the revenue from this source is equal to £3 per ton of cannel carbonised. Mr. Evans also produced specimens of paraffine and paraffine oil, obtained by him from common Newcastle gas tar; and it certainly does seem unreasonable that gas companies should be prevented from converting these residuary products into substances well known before Mr. Young took out his patent.

COMING EVENTS.

Upon the principle that "coming events cast their shadows before," we are accustomed to see the "coming events" of the Great Central Gas movement through the shadowy screen of the Court of Sewers; and, judging by certain phantasmagorial phenomena lately exhibited upon this corporation photometer, we perceive clearly enough that the days of the waxy "four-shilling mixed" are fast approaching that undesirable

terminus from which there are no "return tickets," and where "the wicked cease from troubling and the weary are at rest." In plain words, the Great Central gas has not been taken in by the public as Mr. Dakin expected—or, rather, the public has not been "taken in" by it; and, consequently, the dividends have not been "picked up" so easily as the chairman predicted; therefore we are to have "an improved cannel gas, manufactured by a *peculiar* process," which will possess, amongst other advantages, the following desirable properties: to wit, an excuse for raising the price; a ditto for "raising the wind"; a ditto for reopening capital account; and a ditto for paying next half-year's dividend out of "scrip," instead of "profits." Having been permitted heretofore to use what Mr. Deputy Lott significantly calls "the corporation advertising van," this vehicle is, of course, again appealed to as a means of communicating to the public the important fact, that whereas common gas of the old photometrical standard will not pay at 4s., cannel gas at some other price must, consequently, be had recourse to, or the Great Central light is for ever extinguished. And this cannel gas is, necessarily, another boon conferred upon the public by the Great Central movement! for to that movement will soon be ascribed the merit of originating the manufacture of cannel gas in the City of London!! Some perversely blind people may imagine that the City Gas Company was the first to begin the manufacture of cannel gas; but this is a mistake. True, that company has for some time past been making *something*—but not, oh! dear no, certainly not—"the improved cannel gas, made by a peculiar process invented by Mr. Croll." The City Company makes its gas just as other people do—in fact, just as cannel gas is made, upon the non-peculiar system long followed in Edinburgh, Glasgow, and Liverpool. It is not improved, like the common gas in London, until, as in the existing state of the Surrey Consumers' Company, the consumers find it requisite to unite together, for the purpose of *protecting* (*not* their eyes but) their pockets from the light-fingering of the company. No, the City of London Company's cannel gas is plain honest cannel gas, and has nothing "peculiar" about it; but that the Great Central cannel will be peculiar we do not for a moment doubt; in short, it will be, as Mr. Deputy Harrison styled it, an "extra fine light." But even the worthy deputy seems staggered at the notion of another set of "barricades" in the City. He thinks "the public convenience will be terribly interfered with"; yet again, he "is delighted that all angry feeling has gone; that there is "a kind of feeling" that "the great gas parties have coalesced"; and, in brief, that the advantages of competition are at an end. Without pretending to decide whether Mr. Deputy Harrison has *peculiar* information, which enables him to "delight" himself with the "coalition of the three parties," or whether "the wish is merely father to the thought," we, for our part, know only this, that if such a coalition really exists, then the public may form its own opinion of the protestations and promises put forth by the Great Central Company in favour of the very competition which, it would seem, has terminated at the very earliest opportunity which presented itself to the Great Central patriots. When the bill was wanted, who more clamorous for competition than Mr. Deputy Harrison; when the bill is granted, who so delighted as the same deputy that there is "a feeling between the three parties"—nay, had it not been for this, the eloquent deputy would have looked with "wonderful anxiety" at the breaking up of the streets.

There is, however, a slight error in the assertion that the Great Central Company can charge no more than 4s. per 1000 cubic feet for their cannel gas, as they can supply that kind of gas by "contract"; and this, beyond all question, is their intention; and it seems to us that the public require to be informed upon this subject. If cannel gas be offered to replace, light for light, the present "four-shilling mixed," it ought to create a reduction of at least 15 per cent. in the quarterly account, without which consumers should demand to burn by meter—a request that will be readily complied with by the City and Chartered Gas Companies, though one with which the Great Central will not be able to meet their customers until another application has been made to Parliament. But, as respects going to Parliament, it is mere moonshine to talk of such a thing; and if they never supply cannel gas until Parliament gives them permission to do so, there is no human being now alive that will ever see their "peculiar cannel" gas burning in this world. Parliament, indeed! Pennsylvania might as well apply for another loan, or Mr. Hudson for a railway contract. Yet we can easily believe that the coalition so delightful to Mr. Harrison would be still more so to the Great Central Company, but that company must suffer a little more exposure first. The only way to rest in security for the future is to exhibit one clear case of detected imposture to the scorn of a deluded public: that case is now ripe for exhibition. We ask the old companies, therefore, to remain quiet spectators of the "coming event." Next half-year's dividend will tell a tale, after which the Great Central shareholders must go to dinner "with what appetite they may."

LORD SHAFTESBURY'S NUISANCES BILL.

If there be one object better adapted than another "for the profitable exercise of humbug" in this country, what have been termed "sanitary regulations" most assuredly constitute that object. Upon the generality of matters submitted to his investigation, John Bull ventures to think for himself; but in regard to health he is notoriously the victim of an implicit faith in every description of imposture and prejudice. The calm whisperings of reason are unheeded the moment he hears the word pronounced; and he becomes, so to say, absolutely insane upon sanitary matters. In no country on the face of the globe is one-tenth part of the medicine swallowed which in this drug-besotted island finds its way annually down the throats of the million. Quack medicines, domestic remedies, herbal decoctions, mineral waters, Epsom salts, blue pills, seidlitz powders, senna, rhubarb, brimstone, cream of tartar, castor oil, cod-liver oil, and fat bacon, are among a few of the invaluable panacea which form, as it were, the household requisites of every English family: the difficulty is, to have a trifling ailment and escape being poisoned by the sagacious kindness of one's friends. With such an acknowledged disposition on the part of the public, it may easily be imagined that any proposal which shall confer upon every one both the power and the privilege of using his judgment in respect to what is or what is not injurious to health, must be received on all hands with surprising avidity; and more especially is this calculated to do so if it comes in the shape of an easy test which can be applied at little or no expense.

The getters-up of the present sanitary outcry are well acquainted with the peculiarities of the British nation; and, to give Messrs. Chadwick and Co. their due, we must admit their claim to a considerable amount of adroitness in the mode which they have followed, with a view to terrify some and persuade others. "It is an ill wind that blows nobody good"; and the cholera, which has been death to many, has turned out, in the hands of Mr. Edwin Chadwick and his medical Anchises, Dr. Southwood Smith, an excellent source of living. According to these worthies, dirt and cholera are convertible terms—so that to have dirt is to have cholera—and poor John Bull swallows this, dirt and all, without the trouble of mastication. It never occurs to John to say, "Why, I always had dirt, and I never had cholera until the year 1831"; nor does he say, "I always have dirt, but I have not always cholera"! No, this would be an appeal to his reason which, under the circumstances, John cannot permit—*ergo*, it remains as proved that "dirt is cholera," according to the dictum of Chadwick, Smith, and Co. Besides, dirt is visible to the eye; therefore John has an easy test for cholera.

Not satisfied, however, with the progress thus made towards establishing a permanent salary for themselves, the above sanitary worthies feel inclined to enlarge the area of their operations, more especially as one of them already receives the salary of an office which has long ceased to exist. An attack is therefore commenced against what are called "nuisances"; and John's nose, as well as his eyes, is solicited to co-operate in emptying his own pockets, Messrs. Chadwick, Smith, and Co. meanwhile retaining their present handsome salaries.

It is a well-known principle in parliamentary tactics that, when it is required to take the country by surprise with a new measure, the proper course is to get it first through the House of Lords, where, of course, it excites no attention from the public, but comes down to the Commons ready for an early "thin House." In accordance with this laudable system, my Lord Shaftesbury is put in motion to squeeze a bill through the Lords, with the *quasi-analogous* title, "Nuisances Removal and Diseases Prevention Consolidation and Amendment Bill," in which the changes from "dwelling-house" to "premises," and from "nuisance" to "cause of nuisance," are so adroitly rung out, that not perhaps one in one thousand of the unhappy

manufacturers whom this bill, if passed, will utterly annihilate, can gather the slightest idea that it even alludes to them, and still that they are distinctly aimed at in it. Heretofore it has been the boast of an Englishman that neither in person nor in property could he be injured without an appeal to the judgment of his peers; but by this tyrannical enactment he will find himself at the mercy of a malicious or interested neighbour, with an appeal (!) to two justices, whose decision is final; and who are to determine, not whether the so-called nuisance be a nuisance or an injury to the party, but merely whether "cause of complaint exists"; and, be this little or be it much, it must be "abated or discontinued," at any cost to the manufacturer—"*fiat justitia ruat cœlum*": and, to prevent any mistake upon this latter question, the justices may require the "owner or occupier of any premises creating what is called a nuisance to do such works or acts as are necessary to cleanse such premises and abate such nuisance within such time (not being more than two clear days) after service of such order." So that a heap of bones weighing—say, 2000 tons, or a retort-house with 500 retorts, or a manure-heap of half an acre in extent, must be removed within three days, at the cost of the manufacturer, upon complaint of a malignant neighbour, or "a relieving officer, or inspector of the poor of the union or parish, or any constable or officer of the constabulary or police force of the district, or sheriff's officer; and the local authority may take cognizance of any such nuisance, without entry or examination, upon a certificate thereof in writing, signed by the medical officer of the union or parish, or by two legally qualified medical practitioners"; and, in case the order for abatement be not complied with, "the owner shall be liable to a penalty of 10s. per day during his default; and if the order be infringed, to a penalty of 20s. per day."

We have not space at present to point out the remaining unconstitutional and arbitrary measures in this preposterous enactment, but will return to the subject; meanwhile, earnestly soliciting the consideration of all classes of manufacturers to its obnoxious nature, and to the fact that the bill is to be this evening read a second time, and, if unopposed, it will become law in a very few weeks.

PROMISES AND PERFORMANCES.

We have never entertained or expressed more than one opinion respecting the inevitable issue of the "cheap gas movement," on whatever side of the river Thames it may have been set a-going; and although, from the enlarged facilities possessed by the Great Central Company for retarding a "*denouement*," the question is not yet quite finally disposed of on the northern side, all attempts at concealment have become for some time past impossible on the southern shore. In fact, the Borough of Southwark is in a state of riot, and, as "one nail" is sometimes employed to drive "another out," it seems far from improbable that a Surrey Consumers' Cannel Gas Company will, ere long, throw some light upon the past doings of the patriotic gentlemen who not only undertake to enlighten their fellow-citizens at a cheap rate, but also to perform an act which has hitherto required the consent of the entire Legislature, viz., "to limit the liability of their shareholders to the amount of their subscriptions"—a promise which they had the same power to perform that they had to fulfil the remainder of those contained in the following veracious and modest prospectus:—

THE SURREY CONSUMERS' GAS LIGHT AND COKE ASSOCIATION.

OFFICES—1, WELLINGTON-STREET, SOUTHWARK.

Capital, £70,000, in shares of £10 each—with power to increase to half a million. No call can exceed £2 per share.

***Trustees*—Thomas Barnewall, Esq., York-terrace, Regent's-park; James A. Douglas, Esq., Queen-square, Bloomsbury.**

***Directors*—James A. Douglas, Esq., Chairman; F. M. Beresford, Esq.; Hugh Bowditch, Esq.; W. M. Boyce, Esq.; Edward Hoare, Esq.; Thomas Pocock, Esq.; Sir Wm. R. Sydney; Chas. Walton, jun., Esq.**

***Auditors*—George C. Begbie, Esq., Coleman-street, City; Wm. Bagshawe, Esq., Coleman-street, City.**

***Engineer*—A. ANGUS CROLL, Esq.**

***Solicitor*—W. B. James, Esq., 5, Basinghall-street, City.**

***Secretary*—S. H. Powell, Esq.**

***Bankers*—Commercial Bank of London, Henrietta-street, Covent-garden; and Lothbury, City.**

PROSPECTUS.

The directors of this association are much gratified in being able (after a long and extremely hard struggle) to lay before consumers of gas and the public generally, a statement of the success which has attended their labours, and to show the extremely prosperous condition this association now occupies. It will be remembered that a number of canvassers were appointed to ascertain the feeling of the public, not only in reference to a reduction in the price of gas (about which there were scarcely two opinions), but if consumers generally would be satisfied if that reduction were made by the existing companies. A very plain and satisfactory answer was given to the latter inquiry by nearly 4000 consumers pledging themselves to take gas of this association even if the existing companies should reduce their price; this secures to the association an annual income £40,000. It is, therefore, a matter of absolute necessity that the present extravagant charges for gas should be abolished.

Directors and shareholders of existing gas companies having treated with indifference the loud and just remonstrances of consumers, and having shut the door to all treaty and conciliation, the time has arrived when the interests of consumers must be asserted and maintained. It is well ascertained that the capital, cost of material, and labour employed in the manufacture of gas, constitute a very small portion of the selling price, therefore by these circumstances should the price be governed. Consumers cannot avoid the imposition of extravagant charges, as they are unable to discontinue the use of the article upon which they are levied; therefore to secure in perpetuity, without risk, the benefits of this association, let consumers produce the gas they consume, bind themselves to each other to become customers, and thereby establish the certainty of cheap gas and large profits on their outlay. Consumers, by taking a small number of shares to qualify themselves, will have a voice in, and a control over, the affairs of the association.

Suppose a consumer of gas to pay annually £20 for his gas, at 6s. per 1000 cubic feet, he will, if he take two shares in this association, assist in the reduction of the price to 4s. per 1000 cubic feet, and thereby save one-third of his annual outlay, viz., £6. 13s. 4d., and in three years he will find he has two shares in this association, value, without premium, £20, which, in fact, will not have cost him anything.

It is proposed that the selection of the best and fairest meter before the public shall be entrusted to some eminent engineer, not connected with any gas company, to be appointed by the trustees acting on behalf of the consumers, for the use of which meter no rent will be charged, and every consumer will, should he suppose the meter not to register correctly, have the right at all times to have it inspected by an engineer to be appointed for that purpose, upon payment of some small fee; and the certificate of the engineer as to the fact will be conclusive upon the association and the consumer.

In order to secure to consumers permanently the benefits of this association, the directors have entered into a deed of covenant, under the common seal of the association, with Messrs. Thwaites, Wade, and Bone, trustees appointed, and acting on behalf of the consumers, whereby the independent existence of the company is secured, with the fixity of the maximum price of gas at 4s. per 1000 cubic feet.

The directors have great pleasure in announcing that they have secured for the association the valuable services of Mr. Croll, the engineer of the Great Central Gas Consumers' Company.

Mr. Croll has agreed to forego all personal profit from his exertions as engineer, until the shareholders shall have received, in the first year of supplying gas, a dividend of five per cent., and in the second and subsequent years a dividend of ten per cent. upon their capital invested.

The Southwark, Lambeth, and Greenwich United Consumers' Committee, of which Mr. Thwaites is the president, has been for some time past agitating the cheap gas question, at a series of public meetings, which agitation led to an inquiry into, and the adoption (by that committee) of the Surrey Consumers' Gas Light Association, as will be shown by the following resolutions, which were passed at a meeting, attended by nearly 2000 persons, held at the Surrey Theatre, on June 20:—

"That this meeting, having heard the report of their committee, as read and detailed by the Chairman, it is resolved that the proceedings of the said committee be sanctioned and approved; and that, in the opinion of this meeting, the arrangements made with the Surrey Consumers' Gas Light and Coke Association are highly satisfactory and advantageous to the consumers.

"That this meeting pledges itself to use every exertion to promote the success of the Surrey Consumers' Gas Light and Coke Association, by signing to take its gas, and becoming shareholders in the association; and it is further the deliberate opinion of this meeting, that to take gas from the old companies who may hereafter reduce the price, even below 4s., for the evident purpose of defeating the just rights of the consumers, would be a violation of a social duty, and a direct encouragement of monopoly."

Under the opinions of the Attorney-General, Edwin James, Esq., Q.C., Mr. Sergeant Byles, and Mr. Lush, the directors have been enabled to limit the liability of the shareholders to the amount of their subscriptions.

Applications for shares, in the form subjoined, may be addressed to S. H. Powell, Esq., secretary, at the offices of the company, No. 1, Wellington-street, Southwark.

Such is an exact copy of the promises originally held out by the directors of the Surrey Consumers' Gas Light and Coke Association to their intended dupes; nor do we doubt that there were amongst these directors men who believed in the truth of the statements they advanced; for it unfortunately happens, in all such cases, that the moving machinery is composed of two classes of individuals, viz., reckless schemers, who look to nothing but immediate gain; and honest, though simple, people, who, for a momentary consequence, lend themselves to projects which they do not understand, and by the very earnestness of their convictions deceive many who might otherwise have defied the cunning manœuvres of all the knaves in Europe. Taking the above prospectus as we find it, there is upon its face precisely that kind of exaggerated pretension which ought to have been a warning in itself, without any observations from the experience of others; and we have ever held that, when it is necessary to the success of a new beginner that he should decry the honesty and rectitude of his old-established opponents, the public may rest assured he will be the very first to adopt the very practices he pretends to expose and censure. Gas was to be secured to the Surrey consumers "in perpetuity" at 4s. per 1000 cubic feet, measured by "the best and fairest meters"; and, "in order to secure to consumers *permanently* the benefits (?) of this association," a deed of covenant, under "a common seal," was entered into with Messrs. Thwaites, Wade, and Bone, whereby the existence of the com-

pany is secured, and the maximum price of gas fixed at 4s. per 1000 cubic feet. How far Messrs. Thwaites and Co. feel themselves responsible to the consumers of Surrey, we will not undertake to say, though to a man rather sensitive of the dictates of honour, such a position must be all but intolerable. This, however, we know, that the price of gas charged by the Surrey Consumers' Company is four shillings and *sixpence* per 1000 feet; and the "best and fairest meter" turns out to be Mr. Croll's dry gas meter, which, whatever may be its recommendation to the company, has excited an amount of discontent and suspicion in the minds of the consumers, in comparison with which the pretended "loud and just remonstrances" against the old companies were but as the sighing of a zephyr contrasted with the roar of a lion. But we will allow the consumers to speak for themselves, resolved, as they clearly are, to protect themselves against those who came forward to protect them, as "the Czar" meant to protect "the sick man." The consumers are evidently, like the Turks, not easily put down, as witness the following numerously signed petition to the House of Commons against the bill then pending, but which, through not having been presented in time, could not, by the forms of the House, be entertained:—

SURREY GAS BILL.

To the Honourable the Commons of the United Kingdom of Great Britain and Ireland, in Parliament assembled.

The humble Petition of the undersigned Consumers of Gas, supplied by the above-named association, in the Surrey district,

Showeth,—That a bill has been introduced, and is now pending in your honourable House, under the above name or short title, for the purpose of incorporating the above association.

That such association originated about three years since, in consequence of the monopoly created by the three old companies then in existence, and of their positive refusal, after repeated applications and remonstrance, to lower the high price charged by them for their gas, notwithstanding the public proof given by Mr. Croll, the engineer of the Great Central Gas Company of London, that much better gas could be produced and supplied to consumers, with an ample remunerative profit to the companies, at 4s. per 1000 cubic feet.

That your petitioners, and the consumers of the Surrey districts generally, were induced to believe, from the professions and assurances of the promoters of the Surrey Gas Association expressed in their various printed circulars, and at numerous public meetings held previous to its formation, that better gas, with more illuminative power, was to be supplied to them, and for which they were never thereafter to be charged more than 4s. per 1000 cubic feet; and also, that under no circumstances would the Surrey Company coalesce, or thereafter amalgamate, with the then existing companies.

That, in full faith and belief of those assurances, the consumers gave the promoters their warmest support and assistance, which eventually enabled them to form their present association, and commence its supply of gas to the consumers of those districts.

That your petitioners now find, after an experience of two years, that the gas supplied by the association is considerably *worse*, and of less illuminative power, than that formerly supplied by the old companies; and that, by comparison with former receipts of those old companies in possession of many of your petitioners (for corresponding periods and the same number of lights), that there is an increase, instead of decrease, in the amounts paid by them for gas to the new company; and, during the recent temporary rise in the price of fuel, the association increased the price in all their districts, EXCEPT DEPTFORD, to 4s. 6d. per 1000 cubic feet, which price they still retain, although the price of fuel has receded to its former level. And your petitioners believe, should they succeed in passing their present bill, instead of returning to the 4s. per 1000, it is their intention still further to increase the price, without any pretence whatever for so doing.

That, contrary to its avowed principle at starting, and notwithstanding the assurance to the consumers that such should never be the case, the association have entered into a mutual contract, under seal, with the three old companies, to divide the field of their several operations into certain equal districts; and they have actually allotted such districts between them, stipulating that each company are to confine their mains and supply to the particular district by such arrangement allotted to it, and under no pretence whatever, for the future, are either company to supply a consumer in each other's district.

That such contract has created a much greater monopoly than that for which the Surrey Gas Association was expressly formed to destroy, as it shut out the chance of consumers, however much dissatisfied with the gas of one company, from going to another; whereas, when the old companies only existed, consumers had the option of supply from either of the three, as they all had mains in the same districts, and so continued to keep them up to the period of entering into the above-mentioned compact with the new company; but ever since then, by the terms of the arrangement, there is now only one company's mains in each direction, from which consumers must be *exclusively* supplied, or go without gas.

That your petitioners, in consequence of the general dissatisfaction among the consumers at this total breach of good faith, and positive dishonesty of the association, intimated to another company ("the Deptford") that, should they feel disposed to run mains from Deptford to supply your petitioners, they would be well supported; and such company thereupon expressed their intention to do so.

That your petitioners were not aware until a few days since of the application for the above-mentioned bill, when a gentleman from the Deptford Gas Company called on some of your petitioners and informed them that the Deptford Company had entered an opposition to it, and required their attendance before your honourable committee, to whom the same is referred, to give evidence on their behalf; the Deptford Company fearing (should the bill pass) they would be thereby prevented from carrying out their intention, and your petitioners' wishes, of running their mains to supply them.

That several of your petitioners attended such committee accordingly on Friday last, but, to their great surprise and disgust, were not called, in consequence (as was stated to them by Mr. Sandham, the solicitor of the Deptford Company) of an arrangement come to that day, in the committee-room, with the promoters of the bill, by which "*the promoters are to purchase the plant and works of the Deptford Company, and allow them the expenses of their opposition, whereupon they had withdrawn their opposition.*"

That after your petitioners were made acquainted with such withdrawal, Mr. Croll, the engineer, being under examination, and that gentleman having made statements totally at variance with the truth, and, in reply to a question from the honourable chairman, having stated "that the consumers were all perfectly satisfied with the quality of the gas supplied and the price charged and hereafter to be charged," your petitioner, Benjamin Hayden, unable longer to restrain himself), arose and emphatically denied the truth of Mr. Croll's statement, wherenpon the honourable chairman was pleased to listen attentively to a few words from your aforesaid petisioner, Benjamin Hayden, in reference to the general dissatisfaction prevalent among the consumers, upon which the honourable chairman suggested to your petitioners the expediency of petitioning your honourable House thereon.

That your petitioners feel confident that the object of the promoters of the bill is to create a great monopoly in shutting your petitioners out from the benefits of fair competition in gas, in order that they may the better foist upon your petitioners and consumers generally an inferior gas; and doubtless, should the present bill pass, intending to increase the price eventually to 6s. per 1000 cubic feet; although, beyond doubt, 4s. per 1000 has been proved to be the highest price they ought to pay for a better article than that now supplied to them.

That the said bill will, if allowed to become law, materially and prejudicially affect the rights and interests of your petitioners.

Your petitioners, therefore, humbly pray your honourable House, that the said bill may not be allowed to pass into a law, but that they may be heard before the committee of your honourable House, to whom the same stands referred, against the same, and the clauses and provisions thereof.

And your petitioners will ever pray, &c.

The report of the public meeting of consumers, held on the 4th instant, is given at length in another column, and will be read with interest by all, more especially by those who are disposed to place any reliance on the promises and pledges of the originators of the cheap gas movement of 1849 in the City of London.

Communicated Articles.

ON THE NATURE AND CHEMICAL PROPERTIES OF COAL GAS,

*Considered with respect to its Economical and Sanitary Application for the Purposes of Generating Light and Heat.**

By LEWIS THOMPSON, Esq., M.R.C.S., &c.

IT has long been remarked, as a matter of surprise by intelligent foreigners, that in a country like Great Britain, where the arts have attained an unprecedented development, so much should still remain to be done in respect to the diffusion of useful knowledge amongst the great bulk of the population. Nor is it unworthy of notice that to his Royal Highness Prince Albert we are indebted for the first introduction of experimental science into the educational curriculum of our universities, too long limited as this has been to mere theory. Commencing on such grounds, and supported by such influence, a judicious change of this kind will no doubt make its way from the university to the cottage, and ultimately tend more to humanise and elevate the social character of the nation, than perhaps any other movement of the present day. It must, in the end, open the eyes of the million to their real as opposed to their apparent interests, and, by eradicating prejudice, establish reason in its place; thus it will wither up imposture and misrepresentation beneath the scorching rays of positive knowledge, though much valuable time will no doubt be sacrificed ere these useful results can be arrived at.

With a view to diminish, in some measure, the interval here alluded to, I have ventured to offer a few remarks upon a subject less understood and more strongly misrepresented than perhaps any other manufacturing question of equal extent and importance: I mean the nature and practical application of Coal Gas.

From the moment in which the enterprising genius of Winsor first (instinctively as it were) directed the vast influence of this mighty agent towards the affairs of civilised society, down to the present period, there has been but one incessant struggle, one prolonged fight, betwixt ignorant prejudice on the one hand, and practical knowledge on the other: in fact, betwixt darkness and light.

In return for the promulgation of an idea which now illuminates every large town in Europe, Winsor received the jeers, the scoffs, and even the hate of those he tried to benefit; he met with an opposition as furious as it was uncalled for, and no doubt felt the benumbing influence of popular discouragement, though supported by a noble body of directors evidently not unsuited to the trying nature of their position. It is of course very difficult in the present day to guess at the progress which would, under favourable circumstances, have been made by Winsor alone in the manufacture and application of coal gas; for he certainly understood the whole subject, and might have placed it considerably in advance of its existing condition, had society been then capable of receiving it. But he was checked on all sides, and experienced none of that enthusiastic national sympathy which has lately given so glorious an

* Reprinted from a pamphlet published by the COMMITTEE of the GAS FITTERS' ASSOCIATION, from surplus funds subscribed towards the exhibition of gas apparatus at the Royal Polytechnic Institution in the year 1851.

impetus to our railway system. On the contrary, he had to conquer every inch of the ground he wrung from public prejudice, and as he left the question, so we still find it.

The three great arguments advanced against the public use of gas in the time of Winsor, though now almost annihilated, are yet employed by those who, for one reason or other, entertain an objection to gas lighting: thus we still hear that the use of gas is more dangerous, more insalubrious, and more costly than the common or ancient modes of obtaining heat and light.

It fortunately happens, however, that, from the progress of collateral knowledge, the first of these objections has long ago received a conclusive answer through the experience and practice of our insurance companies, who are now so perfectly convinced of the safety of gas that they neither make any extra charge, nor require any notice or intimation whatever, upon its adoption as a luminiferous or calorific agent in place of lamps, candles, or coals. Here, then, we have the best of tests, the money test, the test of self-interest, a kind of evidence which it is impossible to controvert, coming as it does from a class of the community not very liable to be deceived in such matters; and this test so powerfully demonstrates the entire safety of coal gas that I will henceforth dismiss it without the ceremony of a discussion. No man of common sense now-a-days, in fact, believes that there is any real danger in the use of coal gas.

But the question of insalubrity is not so easily disposed of, for here we have unhappily no insurance evidence to assist us, and even the bills of mortality are inconclusive. Nay, although it is quite notorious that the workmen constantly employed about gas works enjoy excellent health, and attain to a good average old age, yet this only proves (we are told) that they are "used to it," or that, like Macduff, they bear "a charmed life."

Perhaps it would be impossible to point out a more remarkable instance than the above of the effect of prejudice upon the imagination. There are thousands who firmly believe that coal gas in burning gives off some highly deleterious agents, from which wax, tallow, oil, and even coals themselves, are entirely free; and this belief is supposed to possess corroborative testimony in the shape of facts displayed in the creation of disease, or in the misconceived opinions of medical men. But, the real truth of the matter is, that whether gas be burnt under the name of gas or not, can make no difference whatever to the advocates of this strange prejudice, for under all the circumstances used in the ordinary burning of wax, tallow, oil, &c., it is gas, and nothing but gas, which is burnt; the only difference being that coal gas is always purified before it is consumed, whereas the extemporaneous gas of a candle or lamp is consumed without being purified at all, and hence, light for light, it must and does vitiate the air of an apartment vastly more than coal gas. If, therefore, it be true that gas is insalubrious, then wax and oil must be decidedly more so, from the simple fact that all the impurities they evolve pass into the atmosphere of the locality lighted, whereas, the great bulk, at least of those from coal gas, remain at the gas works. The actual question, consequently, for the public to consider is, not whether the burning of gas be injurious to health, for in one shape or other gas must be burnt to procure light, but the point is, whether it is better to consume for this purpose gas of a pure or impure quality.

If we examine the action which goes on during the combustion of a common candle, we shall find that a lighted candle is, in fact, merely an imperfect gas work; the red-hot part of the wick is the retort, the flame is the furnace or oven, and the oil or melted tallow is drawn into the retort by capillary attraction, instead of being projected by mechanical force, as in the case of coals; the heat acts upon the tallow and converts it into impure gaseous matters of an inflammable nature, just as happens with respect to coals; but here the resemblance ceases, for these impure gaseous matters, in the instance of the tallow, are at once consumed without the removal of their impurities, whereas those arising from coal, in the ordinary process of gas making, are conducted through instruments called condensers, scrubbers, and purifiers, where the impurities are arrested by various means, so that in the end pure gas only is sent to be consumed by the public. Thus, then, it would appear that the advocate for wax and tallow illumination is not only himself a manufacturer and consumer of gas, but, what is worse, a manufacturer and consumer of the most impure gas.

It is well known that the red-hot wick of a recently extinguished candle continues to give out a dense fetid vapour or smoke, which readily kindles on the approach of a lighted match. This smoke is nothing but impure gas—the very gas constantly burnt by the wax and tallow advocate—and which, if properly condensed and purified, would resemble coal gas. The two, therefore, differ only in respect to purity; and I have entered thus minutely into the question, for the purpose of showing the extraordinary power of prejudice, because, although it follows as a necessary consequence of the above comparison, and is moreover susceptible of positive proof, that all the ordinary agents employed to give light evolve more impurity, and vitiate a larger amount of atmospheric air, than coal coal, yet many tolerably well educated persons are to be found who have argued themselves into a belief the very opposite of that which is the correct one; and herein resides a painful demonstration of the singular national defect so briefly commented on at the commencement of this little brochure.

A very slight practical knowledge of the subject would suffice to convince every impartial individual that, as regards salubrity, gas has the advantage even over wax. In order, however, that nothing may be taken for granted in this respect, I will here introduce a comparison based upon a luminiferous standard of equality, in which pure wax was consumed on one hand, and common, or what is called 13 sperm candle, gas on the other. The wax by analysis was found to consist of

Carbon	78·2
Hydrogen	12·1
Oxygen	9·7
	100

And the gas of

Carbon	72·1
Hydrogen	26·4
Oxygen	1·5
	100

It was, moreover, ascertained by many trials, that 5 cubic feet, or 1064 grains, of the gas gave as much light as 1885 grains of the wax, when every attention was paid to the trimming of the wick.

From the above, it is clear that the 1885 grains of wax contained 1474 grains of carbon, and must therefore have generated 5404 grains of carbonic acid, whereas the gas contained but 767 grains of carbon, and, consequently, generated only 2812 grains of carbonic acid, which is equal to 2592 grains of carbonic acid in favour of the gas, or, in short, very nearly a sanitary advantage of two to one.

Mr. Brande, in his excellent work on chemistry, has given us much interesting information upon the composition of coal gas and oil; but, unfortunately, the comparison is by weight, and not by photometrical measure; consequently, it is very apt to mislead the casual inquirer.

Thus, we are told that 1 lb. of oil, containing in 100 parts 78 of carbon, 12 of hydrogen, and 10 of oxygen, consumes 13·27 cubic feet of air, and produces 1·06 lb. of water, and 2·86 lb. of carbonic acid, whilst 1 lb. of gas, containing in 100 parts 70 of carbon and 30 of hydrogen, requires 19·3 cubic feet of air, and produces 2·7 lb. of water, and 2·56 of carbonic acid; but this in no way represents the real value of these agents, or their comparative salubrity in a photometrical point of view; for 1 lb. of oil is nothing like an equivalent to 1 lb. of gas, and, therefore, this comparison by weight is positively incorrect.

A great amount of ignorant clamour has lately been raised respecting the production of what has been called oil of vitriol from coal gas; but, as the public mind is now fully convinced of the absurdity of that monstrous assertion. I need not here devote much space to its refutation. A very little time will serve to place all such gross misstatements on their true level; and I allude to a thing of this kind here rather as showing the advantage to be derived by the public from a more general acquaintance with practical knowledge, than because of any intrinsic importance it possesses.

There is no more oil of vitriol generated by coal gas than by wax, spermaceti, or rape oil; in fact, there is none whatever.

The extremely minute quantity of bisulphuret of carbon usually existing in gas gives rise, as every chemist knows, to the production of a little sulphurous acid during combustion, and this escapes into the air, unless ammonia be present, with which it then unites to form a sulphite, and, after a few seconds' exposure to air, sulphate of ammonia; but it is totally false to assert that this either is or ever was oil of vitriol. Under the same circumstances, colza and several other oils give off sulphurous acid, in consequence of the sulphur naturally contained in them. Indeed, as coals are altogether of vegetable origin, it is absurd to suppose they can yield anything different to the products arising from vegetables in general. Yet the venerable prejudice in favour of the light of our ancestors is not altogether done away with, though some singular arguments are occasionally adduced in its favour, one of which was lately told to me on the most unquestionable authority. At one of our large West-end clubs the practice had long prevailed of burning wax candles and spermaceti oil to an extent which entailed on the club an annual outlay of £1200. A few of the junior members proposed to substitute gas, since this would have, amongst other advantages, the very desirable recommendation of saving about £700 per annum, as well as giving more light. The proposition was, however, strenuously opposed by the advocates of the "good old system," and the juniors were barely able to secure the lighting of a single chandelier by gas as a kind of compromise. The chandelier was accordingly lighted, and gave universal satisfaction; so that, after twelve months' trial, it seemed to the juniors but reasonable to expect that the experiment would be extended without opposition. When, however, a party of the "new lights" called upon one of the antiquated oppositionists to learn whether his views had not undergone some alteration in consequence of the admitted success of the chandelier, the old gentleman very quietly remarked, "Oh, yes, it does very well! very well indeed! but no more experiments, pray—no more gas, for I find it is calculated to ruin our fisheries"!!!

I have previously commented upon the greater insalubrity of wax compared with coal gas, when these luminiferous agents are contrasted together according to their chemical composition; but it was obviously necessary on public grounds that actual experiment, and not theoretical deduction, should form the basis of so important an argument. Hence, in order to demonstrate the relative advantage possessed by well-purified coal gas over other luminiferous agents, I instituted a set of experiments in which one photometrical standard was made the means for measuring the relative atmospheric deterioration caused by various luminiferous substances. The standard chosen was coal gas, of such a quality that, when burnt at the rate of 5 feet per hour in a 15-hole argand, with a 7-inch chimney, it gave light equal to 13 spermaceti candles, consuming in the whole 1560 grains of sperm per hour; and such a quantity of the following materials were consumed in a proper manner, as were found to give the above quantity of light; or, in other words, to equal the light afforded by the combustion of 26 grains of spermaceti per minute.

Having carefully ascertained that this luminiferous standard had been reached, a given bulk of atmospheric air was subjected to the action of each description of flame, and the deterioration inferred from the length of time which elapsed ere the flame became extinguished by the contamination of the air, the times being then inversely as the deteriorations. Thus tested,

Rape or colza oil became extinguished in..	71	minutes.
Olive oil	72	„
Russian tallow (P.Y.C.).....	75	„
Town tallow.....	76	„
Sperm oil.....	76	„
Stearic acid.....	77	„
Wax candles	79	„
Spermaceti candles.....	83	„
Common coal gas (13 candles).....	98	„
Cannel coal gas (28 candles).....	152	„

Thus showing that, practically as well as theoretically, the advantage is enormously in favour of gas.

It is well known that carbonic acid has the effect of greatly diminishing the luminosity of coal gas; and, therefore, it seemed to me requisite that a few experiments were needed for the purpose of proving the extent of this evil. I accordingly consumed in a suitable apparatus a quantity of coal gas contaminated with one per cent. of carbonic acid, and contrasted this, light for light, with the result obtained from the same gas when purified. The impure gas burnt 46¾ minutes, the pure gas 52 minutes; and it was afterwards found that to obtain an equal amount of light it required 111 measures of the impure, and but 100 of the pure gas. The public has a right, therefore, to demand that coal gas shall be free from carbonic acid; and this is easily tested by blowing a little of the suspected gas through lime water for a few minutes; the lime-water ought not to become milky or turbid.

When free from carbonic acid (and I am bound to confess that its presence is an exception to the general rule) coal gas will certainly be found by far the least obnoxious form of illumination yet discovered, as well as the cheapest. But I shall be told, in spite of my experiments, that the daily experience of the million is directly opposed to my conclusions, and that gas does require more ventilation, and does generate more inconvenience and atmospheric deterioration, than candles or lamps; in short, that everybody knows and feels it; that everybody says so, and "what everybody says must be true."

Now, without the slightest wish to controvert so extensive an authority, I will merely proceed to show that this general assertion in no way militates against my facts. I have proved as clearly as anything short of positive experiment can do, that with any given amount of light a person could live in a confined room lighted by gas longer than in one similarly illuminated with colza oil, in the proportion of 98 to 71, or with cannel gas in the proportion of 152 to 71; but this holds good only so long as the amount of light is equal from both of the luminiferous agents; for, if this becomes altered, the argument is no longer tenable.

Thus, if with common gas the light be made double of that from the colza oil, then the proportion will be $\frac{98}{2}$ to 71, or as 71 to 49, in favour of the oil; and this extremely unfair view of the subject has most undoubtedly given rise to much of the present prejudice against gas. Without taking into consideration the fact that twice or thrice the amount of light was being emitted from the gas, the public mind has been directed to the greater heat and difficulty of respiration caused by the use of gas over that formerly experienced with lamps or candles. But would any one now be listened to who ventured to argue that the expense of travelling by railways exceeds that of the old mail-coach, because, for a given amount of time, the money paid is greater by the first than by the last, the distance travelled forming no part of the calculation? Nevertheless, this is precisely the kind of accusation brought against gas. A tradesman hitherto content with an amount of light equal, perhaps, to 16 sperm candles, suddenly becomes disgusted with the expense, the annoyance, and, withal, the uncertainty in effect of his oil lamps; he accordingly sends for a gasfitter, and, knowing nothing about the quantity of light he has hitherto employed, he orders gas to be laid on at about the same cost per quarter. The result is, that instead of a 16-candle illumination, he has now probably reversed the figures and got 61. He is, however, delighted with the change, and would never think of going back to the filthy oil; "but there is one drawback: he finds his shop much closer and hotter than with the oil;" consequently, he draws the conclusion that there is some impurity (he thinks sulphur) in the gas; yet it never occurs to him to try whether, with four times the number of lamps he formerly used, his inconveniences would be less than with gas.

Again, it happens that most of the rooms in our large towns have been built of such a height and cubical contents, as unfits them for almost any form of sanitary illumination beyond that of a rushlight.

Take, for instance, an apartment (and there are many much smaller) of about 12 feet square and 10 feet high, having, in fact, a cubical content of 1440 feet; this content being diminished to not more than 1000 cubical feet by furniture and the presence of four human beings. Let it be next assumed, for the sake of argument, that, unlike the unhappy occupants of the Black Hole at Calcutta, these four persons do not contaminate the air of their apartment, but that an argand gas burner, consuming 5 cubic feet of gas per hour, is introduced. The question arises, how long would this apartment be fit for the healthy respiration of its occupants?

It has been proved that air containing one per cent. of carbonic acid is unfit for human beings to respire, and that $\frac{1}{100}$th part cannot be safely exceeded for more than short intervals; and as coal gas produces, when burnt, very nearly its own bulk of carbonic acid, we see at once that in half an hour the argand burner in question would contaminate the air of the above apartment beyond the point of salubrity, and this, too, altogether independent of the carbonic acid exhaled from the lungs of the four inmates. Yet gas is not unfrequently introduced into such places without the slightest additional means of ventilation being thought of, and, but for the fortunate inconvenience arising from the heat, which soon necessitates an alteration, I have no doubt that many persons would have suffocated themselves by ignorantly consuming gas, as has too often happened with charcoal stoves.

In alluding to the heat which arises from the use of gas, I may as well in this place correct a very popular error upon this head. Most people imagine that gas gives rise to more heat than lamps or candles, whereas in reality they give much more. But in this, as in all other cases of comparison, regard must of course be had to an equality of light. For example, it would be but a sorry argument to contrast the heat of a single candle with that of an argand gasburner giving the light of 13 candles. If, however, the experiment be fairly conducted by burning 13 candles against such an argand burner, it will be found, as I have stated, that the maximum of heat is produced by the candles and not by the gas. For the purpose of giving a definite expression to the relative calorific powers of different luminiferous agents, I instituted a set of experiments based upon a photometrical standard, in which the light was made equal to that of one sperm candle, burning at the rate of 120 grains per hour, and each experiment lasted one hour. Thus circumstanced, the following table exhibits the amount of water raised from 60° to 212° Fahrenheit by each agent, and consequently indicates their relative heating influences:—

Cannel gas	raised	4074	grains of water	152° Fahr.
Common gas	„	6840	„	„
Sperm candle	„	7305	„	„
Tallow mould candle	„	7534	„	„
Colza oil	„	7870	„	„

The impossibility of maintaining one uniform rate of consumption in the case of the candles and oil, detracts slightly from the value of the above results; but the indications are too decisive to permit this general conclusion to be doubted—that, light for light, the inconvenience arising from heat is much less with gas than with any of the ordinary agents employed to give light; and in the case of cannel gas the advantage is very great.

Now, the origin of the popular error connected with this subject is one which demands a little attention from its connection with the economical use of gas in private houses, for though no person at present doubts the fact that, where a considerable amount of light is required, gas is infinitely cheaper than anything else; yet, strangely enough, it would appear that where but little light is needed gas is not cheaper.

This arises from the difficulty hitherto experienced in bringing the light from a gasburner into the same convenient locality as that to which a lamp or candle may be applied. Something seems still wanting in this respect to reconcile the use of gas to the exigencies of the poor; for, as the effect of light diminishes in proportion to the square of the distance, it is clear that a single candle, placed at two feet from any object, will illuminate that object as strongly as 13 candles, or a gas light equal to 13 candles would do if placed at a distance of rather more than seven feet. Thus we see the advantage of position which the common candle possesses, and which compels the public to consume, as a general rule, thirteen times as much gas, and to generate thirteen times as much expense, heat, and inconvenience, as would be incurred did we possess facilities for bringing the gas we burn into the same advantageous proximity as the candle. And the above fact requires also to be kept in mind by those who would substitute gas light for any other in common use. If, for instance, a person has been

accustomed to read a newspaper in a particular part of a room, by means of a candle placed at any given distance from the paper, the question arises how much light ought to be emitted from a gas-burner about to be placed in the middle of the room, or at some assigned distance, so that the individual may still retain his favourite position and have the same amount of light as before.

Thus, taking the preceding example, let it be assumed that a candle, placed at a distance of two feet, has been found sufficient, the question is, what amount of light must be given off by an argand gasburner situated in the middle of the room at a distance of 10 feet? Squaring the two numbers we have $2\times2=4$ and $10\times10=100$, which is 4 to 100, or $\frac{1}{25}$; therefore, the gasburner, in this case, would require to emit a light equal to 25 candles, in order that the same amount of illumination should ensue. This fact has not, I fear, been sufficiently understood or insisted on in the application of gas, nor have we, that I know of, any means of bringing the light of gas nearer to the point of action. The vulcanised india-rubber tubing is convenient, but possesses the very great disadvantage of losing its elasticity by the prolonged use of gas through it, so that it is apt to crack and give rise to a leakage; at the same time there is no subject connected with the economical employment of gas which requires to be more carefully investigated than this question of proximity, nor one which would more amply remunerate an inventor.

In respect to the actual cheapness of gas in comparison with lamps and candles, but little need be said, as this is now universally admitted, even by the most prejudiced; nevertheless, it may not be amiss here to introduce, in a tabular form, the relative proportion which the more ordinary light-giving materials bear towards 1000 cubic feet of what is called common or 13-candle coal gas, without introducing the element of cost at all. Tried by the photometer

1000 cubic feet of common gas were found to equal the light of	312,000 grains, or 44⅔ lb. of sperm candles.
" "	341,750 grains, or 48⅞ lb. of carefully snuffed waxed candles.
" "	358,000 grains, or 51⅛ lb. of stearic acid candles.
" "	370,540 grains, or $52\frac{9}{10}$ lb. of best mould candles.
" "	381,000 grains, or 54⅜ lb. of best dip candles.
" "	417,220 grains, or 6½ gallons of purified colza oil, sp. gr. 915.
" "	366,310 grains, or $5\frac{9}{10}$ gallons of sperm oil, sp. gr. 888.

To use this table in a monetary point of view, it is only necessary to contrast together the price paid for 1000 cubic feet of gas (from 4s. to 5s.) and that charged for the quantity of any one of the other materials placed opposite to it. Thus, suppose the gas at 4s. 6d. per 1000, and dip candles at 7d. per pound, then the relative cost of light by these agents is as 4s. 6d. to £1. 10s. 10d., and so on for the rest. From the preceding facts I think it will be admitted by every candid inquirer that, in point of safety, salubrity, and economy, coal gas not only rivals, but greatly excels, every other form of illumination yet within the reach of the public; and I know of no reason, unless ignorance and prejudice may be dignified by the title, why gas should not be universally employed in all our small towns, and even villages.

In the moral as in the physical world, the first mandate is equally applicable—"Let there be light," and not only darkness but vice will be diminished.

After having commented upon the comparatively small amount of heat generated by the combustion of coal gas as an agent of illumination, it may seem singular that I should now proceed to speak of its value as a source of heat or caloric.

But the circumstances of my first argument were based upon a limited standard of photometrical power, and confined to a simple comparison with other substances specifically described; whereas my present inquiry bears altogether upon a calorific standard, and goes no further than to a partial comparison with one kind of fuel. In short, what I wish to convey is, that for some temporary purposes, gas, at the present London prices, is cheaper than coal as a fuel; but by this I in no way advance the general proposition that gas as fuel is cheaper than coal as fuel, for that is true only under some peculiar circumstances, which I will now endeavour to point out.

Thus, where a fire is needed hastily, and for a temporary purpose, gas will always be cheaper than coals, as in heating water for a bath, or in small culinary operations; again, where a moderate fire of great uniformity is required to be maintained for many hours or days, the cost of gas will be less than the mere extra cost of attendance with coals, and the same thing holds good in many other cases.

Foreseeing that questions of this kind must one day force themselves upon public attention, I have made many experiments of a practical kind, in order that some fixed data may exist to constitute, as it were, the nucleus of future and more valuable results. My mode of proceeding has been to determine how much it costs to raise a gallon of water, contained in a copper kettle, to the boiling point, by means of a recently lighted fire in the one case, and by means of a small gas stove in the other. The average result of thirty-six experiments, with each of these sources of heat, has been as follows:—

	Coal used.	Wood used.	Time employed.	Total Cost.
With fire,	4½ lb.	⅛ of 1d.	1 hour.	$\frac{77}{100}$ of 1d.
With gas,	4 cubic feet at 4s. 6d. per 1000.		20 minutes.	$\frac{7.6}{100}$ of 1d.

So that there is an economy in price of nearly three per cent., and a saving in time of two-thirds, by the use of gas, to say nothing of the cleanliness and comfort thus secured.

When a common grate is provided with perforated bars put into communication with a service-pipe, it is easy to obtain in a few minutes, not only the appearance, but the substantial realities of a good English fire. Thus, if we fill the grate with pieces of the common peroxide of manganese of various sizes, these, upon lighting the gas in the grate, will speedily become incandescent, and, from their high radiating power, diffuse an agreeable warmth into the surrounding air, whilst, at the same time, they take on very much of the appearance presented by burning cinders in an ordinary fire.

Many other bodies possess this power, and have accordingly been patented for the production by gas of what is called an "Englishman's fireside."

For example, pumice-stone, asbestos, and fire-brick, have been thus secured, and more recently metallic platinum has been included in a late patent, known as the polytechnic fire.

Being a metallic substance, and practically indestructible, platinum possesses in an eminent degree the properties needed for the purpose in question, and nothing but its great cost offers an impediment to its use. I have, nevertheless, seen it practically employed by Mr. Defries in the way alluded to, and certainly with the most complete success, both as regards appearance and the comforts of warmth and thorough ventilation. Indeed, in the latter particular, there is nothing left to be desired; and although the present price of gas is such as to limit its use, in a calorific sense, to specific purposes, yet there is not that extra cost incurred which would preclude it from competing with coal, and still less with charcoal, in the case of picture-galleries and other similar situations, where the expense of clearing away dust and the damage thus caused are objects of importance. To obtain a perfect estimate of the relative money values of gas and coal as calorific agents, we must begin by taking a comprehensive view of the contingencies inseparably attached to both; and perhaps, when the expense and inconveniences arising from soot, smoke, and ashes, are added to the cost of the coal in the shape of labour for cleaning rooms, furniture, and chimneys, together with the damage thus created, we shall find no great reason for concluding that the general use of gas as a heating agent is either an impossible or improbable event in the progressive march of real civilisation. As the last forty years has seen it rapidly supersede every other form of illumination, so may the next forty witness its adoption for heating and ventilating our apartments.

The very creditable state of development which the gasfitters' art has reached, renders it unnecessary for me to offer many remarks to the general reader on this subject. In fact it would scarcely be possible to convey any really useful information upon such a matter to the public at large. Specific rules could only suit specific circumstances, and the advice adapted for one locality might prove worthless or even injurious in another.

With common gas, one kind of burners and glasses may be needed, whilst with cannel gas, both would require to be changed. These things are, however, very well understood by the trade, and no person need apprehend being much led astray by the advice he will receive from respectable tradesmen of this class. The meter, indeed, is a kind of universal enigma, and has, therefore, become an object of general suspicion (from the apparently unintelligible nature of its indications). In reality, these are extremely simple, more especially to persons conversant with decimal fractions, and I would here have introduced a few explanations respecting them, had this not already been done in the most lucid manner by Mr. J. O. N. Rutter, of Brighton, to whose admirabe little treatise on the "Advantages of Gas in Private Houses" I respectfully refer my readers for much valuable information on this and other matters connected with the use of gas.

REPORT OF EXPERIMENTS ON WHITE'S HYDRO-CARBON GAS.

By Thomas G. Barlow, C.E.

(*Continued from page* 453.)

The experiments herein recorded are, in my opinion, conclusive in favour of the soundness of the hydro-carbon theory; but considerable difficulty exists in its practical application on an extensive scale, from the following amongst other causes:—

1. The uncertainty in the rate of its production, arising from the difficulty of maintaining the water retorts at a sufficiently elevated temperature to ensure the uniform decomposition of the steam.
2. The large quantity of carbonic acid produced in proportion to the combustible gases.

3. The difficulty of maintaining the proper proportion between the water gas and the cannel gas, so as to produce uniformity in the quality of the combined gases.

The first day's operations demonstrate the uncertainty in the rate at which water gas was generated by the apparatus in which these experiments were carried on. The temperature of the water retorts could not have been less than 1600° Fahr. at the commencement, when the production of crude water gas was at the rate of 870 feet per hour. In 22 hours the temperature had fallen to 1200°, and the yield of crude gas to 160 feet per hour. Again, on the second day, after two hours stoppage of gas-making, during which the temperature of the water retorts would necessarily have risen considerably, the yield of crude gas began at the rate of 416 feet per hour, and in 22 hours it had fallen to 270 feet. On the fourth day, the average had again fallen to below 200 feet, or to 50 feet of crude gas per water retort per hour.

A large share of these variations, doubtless, arises from the very inferior quality of the coke used in the first instance for making water gas, and from defects in the construction of the furnace, and in the retorts themselves, both of which are, in several respects, capable of considerable improvement; and I have little doubt that future experiments with improved apparatus will show that a retort weighing 5 cwt. is capable of producing 100 feet of water gas per hour, with an expenditure of 6 lb. of common coal as fuel, and 2 lb. of suitable coke for decomposing the water. With the view, however, of adjusting and regulating the supply of water gas to the cannel retorts, it is indispensable that the water gases should be collected in an intermediate gasholder, to receive, when required, any excess, or supply any deficiency. The direct transmission of these gases from the water retorts to the cannel retorts is, in my opinion, one of the radical defects of White's system, as we have seen that its quantity may vary from 160 to 870 feet per hour, whereas had an intermediate gasholder been used, a uniform supply of about 350 feet could have been maintained, or, what would have been still better, a graduated supply given according to the state of the charge in the cannel retort; a large quantity of water gas being supplied at its commencement, and then gradually diminished till it was entirely cut off, before the charge was quite exhausted. This might be effected by a very simple self-acting apparatus, similar to an ingenious contrivance adopted by Dr. Frankland for effecting a like purpose in the supply of steam to the water retorts.

It does not seem possible to generate water gas, at one operation, at a temperature to which iron retorts can be safely heated, which shall contain less than from 16 to 20 per cent. of carbonic acid, the cost of purifying which, by lime, will be from 4d. to 5d. per 1000 feet of crude gas. Many suggestions have been made for remedying this most serious of all the objections to White's process, but the most practicable is that of passing the crude gas, after condensation, through a retort filled with incandescent coke, and thereby effecting the conversion of the greater part of the carbonic acid into double its bulk of carbonic oxide, a combustible gas. Had such a system been adopted, the first day's operations would have yielded 11,200 feet of combustible gas instead of 7466 feet, with an additional expenditure of only 15 lb. of carbon, and the produce per retort would then have been nearly 125 feet per working hour.

The use of an intermediate gasholder will go far towards annihilating the third objection to the process, as the quantity of gas transmitted through apertures of certain dimensions is uniform when the pressure is constant, as is that given by a gasholder; and the bulk of the diluent may therefore, by this means, be easily adjusted to the quantity of the original gas to be diluted.

The main question, as to the cost of the gas manufactured with the improvements herein suggested on White's process, as compared with the ordinary system of gas-making, has still to be considered; and will, in a great measure, depend upon the extent to which the several qualities of cannel used will bear dilution and still yield gas of the required standard of illuminating power. The only two cannels operated upon were Boghead and Newcastle: the former of which gave an actual gain of 38 per cent. in illuminating matter when diluted with water gas in the proportion of 100 of the former to 97 of the latter; but, as I have already stated, I believe the gain would have been 50 per cent. had the whole of the carbonic acid been removed, and the gas burnt at the rate of 5 feet per hour. With the Newcastle cannel there was a gain of 32 per cent. (and it would probably have been 40 had the above-mentioned conditions been complied with), the dilution being at the rate of 100 of the cannel gas to 205 of the water gas. It would appear from this, that, though the gain is about 50 per cent. when the bulk of the Boghead gas is doubled, it is only 20 per cent. when the Newcastle cannel gas is similarly treated: a difference easily accounted for by the relative richness of the two materials in naphtha or hydro-carbon vapours. I should not, therefore, be at all surprised if Boghead cannel gas would bear dilution, on the improved hydro-carbon process, to the extent of eight times its original bulk, and yet yield a gas by which the 5-feet argand burner would give the light of 13 standard sperm candles; and that Newcastle cannel gas may similarly be increased to four times its bulk with the same results.

Large, however, as is this apparent gain, it is very doubtful whether the process can be economically adopted in gas works where, as on the south and east coast of England, the residuary products, coke and tar, return 50 per cent. of the prime cost of the coal used, after providing the necessary fuel. If, for the purpose of comparison, we take the present London prices of coals and coke, we shall obtain the following figures as the comparative cost of the materials for manufacturing 13-candle gas on the two systems.

Cost of Newcastle Common Coal Gas.

	s.	d.
1 ton of coal, delivered	17	0
9 bushels of coke as fuel, at 3½d.	2	7½
Purification of 9000 feet of gas, at ¾d.	0	6¾
	20	2¼
Deduct		
36 bushels of coke, at 3½d	10	6
10 gallons of tar, at ¾d.	0	7½
	11	1½
Cost of the materials for making 9000 feet of gas	9	0¾

= to a fraction more than 1s. per 1000 feet.

Under the most favourable circumstances, the cost of materials for gas of the same quality, manufactured by the hydro-carbon process, would be as follows:—

Newcastle Cannel Hydro-Carbon Gas.

6 water retorts producing 600 feet per hour	14,400
2 retorts carbonising 11½ cwt. of Newcastle cannel	4,887
	19,287 feet per diem.

Cost.	s.	d.
11½ cwt. of Newcastle cannel, at 25s.	14	4½
The coke produced will serve as fuel, with 5½ cwt. of coal, at 16s.	4	3½
Purification of 19,287 feet, at ½d.	0	9¾
	19	5¾
Deduct 8 gallons of tar, at 1d.	0	8
Cost of the materials for making 19,287 feet of gas	18	9¾

= to 11$\frac{7}{10}$d. per 1000 feet.

Boghead Cannel Hydro-Carbon Gas.

8 water retorts, producing 800 feet per hour	19,200 feet.
1 retort carbonising 4½ cwt. of Boghead cannel	2,812
	22,012 feet per diem.

Cost.	s.	d.
4½ cwt. of Boghead, at 40s.	9	0
Fuel.. 1188 lb. for water retorts.		
,, 156 ,, cannel retort.		
Carbon 396 ,, decomposing water.		
1740 = to 15 c. 2 qr. 24 lb.		
or 41½ bushels of coke, at 3½d.	12	1½
Purification of 22,012 feet of gas, at ½d.	0	11
	22	0¼
Deduct 6 gallons of tar, at 1½d.	0	9
Cost of the materials for producing 22,012 feet of gas	21	3½

= 11$\frac{3}{10}$d. per 1000 feet.

My experience does not, consequently, confirm the assertions of those who have held out to the London gas manufacture a prospect of great economy by the adoption of the hydro-carbon process, although I can see a large field for its introduction in situations where the value of the residuary products bears but a small proportion to the prime cost of the materials used. In Lancashire and Scotland, for instance—where common furnace coal and gas coke are cheap, and cannel dear—the process may ultimately be adopted, should experience prove that the wear and tear of apparatus, and labour, are not higher with it than with the ordinary process. Similarly, also, in foreign countries and the colonies, in many of which common fuel can be obtained moderately cheap, but which are deficient in suitable materials for gas-making, there is a wide scope for its use.

In the middle and southern parts of Lancashire, the present cost of materials for Wigan cannel gas may be estimated as follows:—

	s.	d.
1 ton of Wigan cannel	16	8
6½ cwt. of coke, as fuel, at 6s. 8d.	2	2
Purification of 10,000 feet of gas, at ¾d.	0	7½
	19	5½
Deduct		
13 cwt. of coke at 6s. 8d.	4	4
15 gallons of tar, at 1d.	1	3
	5	7
Cost of materials for producing 10,000 feet of gas	13	10½

= 16$\frac{6}{10}$d. per 1000 feet.

I believe that on the hydro-carbon process, 50 per cent. of water gas, free from carbonic acid, may be added to Wigan cannel gas, without lowering the quality below that supplied in Manchester and several of the neighbouring towns, at the following cost for materials:—

2 water retorts, producing 200 feet per hour	4,800
2 retorts, carbonising 19¼ cwt. of Wigan cannel..	9,600
Per diem	14,400 feet

Cost.

	s.	d.
19¼ cwt. of Wigan cannel, at 16s. 8d.....	16	0½
Fuel.. 288 lb. for water retorts.		
„ 700 „ cannel retorts.		
Carbon 96 „ decomposing water.		
1084 = 9 c. 2 q. 20 lb. coke, at 6s. 8d.	3	2¾
Purification of 14,400 feet of gas, at ¾d....	0	10¾
	20	2

Deduct

	s.	d.		
12½ cwt. of coke, at 6s. 8d.....	4	2		
12 gallons of tar, at 1d.	1	0		
			5	2
Cost of materials for producing 14,400 feet of gas.. = to 12½d. per 1000 feet.			15	0

With a richer material than Wigan cannel the economy would, doubtless, be greater.

From the preceding data, any intelligent gas engineer will be able to ascertain the cost of hydro-carbon gas, produced under other conditions as to the price and quality of materials used; but it must be distinctly borne in mind that the calculations I have made are based upon such improvements being effected in the apparatus as will ensure—

1. That the temperature of the water retorts shall be maintained at 1500° Fahr. or upwards, with an expenditure of not more than 60 lb. of fuel per 1000 feet of water gas produced.
2. That the greater portion of the carbonic acid produced shall be converted into carbonic oxide before its admission into the cannel retort.
3. That the water gases shall be supplied to the cannel retort in such proportions as to produce uniformity in the quality of the combined gases.

And it is to these points that the attention of the proprietor of White's patents should be especially directed.

In conclusion, I have to express my obligation to Dr. Frankland for the valuable assistance he rendered me in the course of these experiments; and to the proprietors of the patents and their agents, for their frank and unreserved co-operation in the investigation; and I trust that, now that their attention has been directed to the essential points of their process, they will be enabled so to improve upon it as to repay them for their large expenditure of money and for their persevering endeavours to introduce the process into beneficial operation.

Correspondence.

GAS MAKING IN SCOTLAND.

Sir,—The fact that, at the present time, anything is interesting the tendency of which is to elucidate the price at which gas can be made and sold to the public, is the only apology I have to offer for troubling you with a statement of our proceedings for the year ending May 15 last. I believe it has been one of considerable difficulty to many gas companies, on account of the very great increase which took place last winter in the price of coals used in the manufacture, as well as from a corresponding rise in labour, and other material, required in the works.

You will see, from the enclosed balance-sheet, that these causes have not operated against us to any great extent. We have had our annual meeting of the shareholders, at which a dividend was declared to the satisfaction of all present, and a balance of £80 carried to the reserved fund.

That the sum of £312. 3s. 8d., stated as net profit, is fairly earned, there cannot be a doubt, seeing that we are in the practice of making each year "stand on its own feet," that is, we call in, and pay off, all accounts due by the company at the 15th of May in each year. We have other sources of income, which I have not taken into account, as, if I were, it would not show fairly how the works are conducted. And I beg to call your attention to the fact that large sums are paid yearly for meters and extensions which are, from time to time, required in the works, entirely out of profits.

There has, as yet, been no movement in Scotland towards a rise in the price of gas, as has been the case in England, and I have no doubt it will be unnecessary, as, from the general well-known energy and determination of those entrusted with the management of gas works in Scotland, the present difficulty will be boldly met, and successfully got over. It must be kept in mind, however, that the duties of a gas manager in Scotland are light in comparison to what they are in England. In Scotland, their attention is directed solely to the making of the largest quantity of good gas, in the shortest space of time, from a given weight of coal; whilst in England, the profits depending so much on the sale of coke, their attention is necessarily divided between the manufacturing of coke and that of gas making. Though coals are high in price just now, yet, on referring to the prices paid in 1847, I find that the same quality of coal (viz., first quality of Mid-Lothian parrot) which I am at present working cost—cost us at the pit mouth—exactly the same price as at the present time, viz., 20s. per ton; and, as we had not railway communication at that time so directly as we have now, we are still in a better position with regard to the price of coals, as delivered into the works, than at that date. It should also be kept in mind that the consumption of gas has very much increased within these few years, and, in my opinion, that circumstance is of greater importance, as tending to increase the profits of a gas company, than the mere rise or fall of a few shillings per ton in the price of the coal used in the works.

From having an intimate knowledge of the Mid-Lothian coal-field, I think that the price of parrot coal will rule high for some time to come. Of the three collieries furnishing the principal supplies—namely, the Marquis of Lothian's, Arniston, and Edgehead—only Arniston can furnish anything like a regular supply; the present winnings of the other two are all but exhausted; and, although all of them are engaged in sinking deeper pits, a considerable time must elapse before their output will affect the market. Boghead has shared fully more than the other parrots in the general rise; last year they were laid into our works at 20s. per ton, and this year, according to the price quoted at Leith, they will cost us upwards of 30s. per ton; and I have no doubt that there will still be a large demand for them, to be used, along with inferior coals, for the purpose of bringing up the average quality of the gas. They are, however, an expensive coal to work—seeing that they require the highest heat that can be got on any retort, and produce coke of such inferior quality as to be altogether unfitted to bring up the heats to the pitch required. For my part, I do not like to work them—they make the joints in the works bad to keep, and produce a superabundance of tar and water, which we cannot get easily disposed of. The vapours of naphtha also, which they furnish in large quantities, cannot be completely condensed in the works, even in the coldest weather, but are carried into the mains, to a very considerable distance from the works, as we find on pumping the drips, or where we have occasion to open a pipe in which an accumulation of water has taken place. I am also of opinion that taking Boghead, on the average, as furnished to us from the pits, it will not produce anything like 14,000 feet per ton; 12,000 feet is very like the product, when wrought in large quantities. The gas produced at that rate is, however, of a highly illuminating nature, and, on that account, it is extremely valuable in enabling us to tide over the short and foggy days of mid-winter.

In looking at the results of last winter's workings, I do not see any reason to alter my opinion as to the "heat" at which I have been accustomed to work our retorts; indeed, the more experience I have of it, the more convinced I become that, from the coal remaining so short a time in the retorts, the quality of the gas is not deteriorated, but the contrary; and this I affirm from having made many experiments on the splint coals and inferior parrots which exist in the coal-field of the Lothians.

I invariably find that when the retorts are of a dull red colour—as they are on the Monday mornings during the summer season with us—we are able to make very little gas, and what we do get is of a very inferior quality, much more of it being required to give us the necessary quantity of light than is required on the other nights of the week.

I may here state that, to test the heat of our retorts, I am in the practice of using a piece of copper wire of size No. 15 wire gauze, introduced at the sight-hole, and laid upon the top of the retort; if it is melted immediately upon being laid down, I am satisfied; if not, I consider the heat too low to work our coals to advantage; and besides, were it not for the high heats at which we work, we could not turn out, in the three winter months, nearly one million cubic feet of gas from two retorts, working two-cwt. charges. It is all very well to tell us that good gas can only be distilled at a low heat; but I have yet to learn that the weak and dirty gas which comes off when the charge is too long continued does not come off as well at a low heat as at a high one. Experience proves that it does; for I find that on allowing the usual charge of coal to remain in a retort at a dull red heat until no more gas comes off, and then raising the heat as quickly as possible to the usual temperature at which our retorts are wrought, no more gas comes off, at least I have never been able to get it to move the water in the hydraulic main.

It is as much a question of time as temperature, so far as the quality of the gas is concerned; and I believe that the impurities which are charged on the London gas is more owing to the low heat at which the gas is driven off, and the long roasting which the coke necessarily undergoes during the process, than to any other thing. The greater number of the impurities, which has so much alarmed Dr. Letheby, only come off during the roasting process, which those portions of the coke most in contact with the heated

surface of the retort are subjected to, whilst waiting for the gas being expelled from the interior of the charge.

As a test of the quality of the gas supplied from the works here, I enclose you a union jet which has been in constant use for seventeen years; it has distributed light during that long period to a working shoemaker, and I have no doubt would have done so for another seventeen years if I had not taken it out with the intention of sending it to you. JAMES ROBB.

Working Balance Sheet for the Year ending May 15, 1854.

INCOME.

Received for gas sold, 2,155,200 feet, at 7s. 11d.		£853	8	8
„ meter rent, at 2s. each		26	2	0
„ meters, tar, and pipes sold		11	16	9
			£891	7 5

EXPENDITURE.

Paid for parrot coal		231	10	4
„ furnace coal		36	3	4
„ lime		6	5	3
„ retorts, bricks, and apparatus for extension of works		38	18	7
„ meters		36	12	0
„ accounts		39	12	7
„ public rates and fen duties		17	14	8
„ salaries, manager and treasurer		90	0	0
„ wages on works and streets		82	7	0
			£579	3 9
Net profit			£312	3 8

Haddington, July 3, 1854.

MANN'S SYSTEM OF PURIFICATION.

SIR,—I have seen in your last number a letter from Mr. Mann, stating that he does not infringe my patent by the way he uses oxides of iron, as he only uses them to purify foul lime and not gas. This is an error, as the oxides do not purify the foul lime, but the gases set free from it; and two of my patents are infringed by the process.

I am induced to trouble you with this, lest silence should be taken for acquiescence. F. C. HILL.

Chemical Works, Deptford, June 24, 1854.

Register of New Patents.

JOHN CHISHOLM, Middlesex, practical chemist, for "*Improvements in the distillation of organic substances, and in obtaining products therefrom.*" Patent dated Dec. 9, 1853.

The patentee proposes to obtain cyanogen compounds from animal and vegetable bodies mixed with lime, potassa, and soda, in the following manner:—He makes use of close vessels, such as the retorts now used in the manufacture of coal gas, or a furnace so constructed that a stream of atmosperic air, highly heated and deprived of its oxygen, may pass through one or more chambers charged with organic bodies, such as fish, hoofs, horns, or animal offal, mixed with any of the requisite alkaline substances aforesaid, and decompose and carbonise the organic bodies. For example, let 100 lb. of blood be mixed with 5 lb. of potassa (commercial potash), and evaporated to dryness in an iron vessel, and let the dry mass then be placed in a retort and submitted to destructive distillation. In connection with the retort an apparatus is to be attached, similar to that now in use for the manufacture of gas from coal; the gas escaping from the retort will be made to pass through one or more vessels called purifiers. Such vessels may be charged with any of the well-known chemicals in use for arresting ammonia, such as chloride of calcium, or sulphate of lime, or solutions of sulphur or hydrochloric acid, or bones finely ground that have been mixed with half their weight of sulphuric acid. During the distillation, nitrogen and hydrogen will be given off, forming ammonia; and in its passage through the purifying vessels such ammonia will be arrested and fixed. The gas, after being deprived of its ammonia, will possess considerable heating and illuminating power, and may be conducted to and burned in the furnace, or received in a gasholder for the purpose of light. One fire will do for five retorts, and each charge will take about four hours in working off. The carbonaceous mass must be removed from the retort to a vessel, and excluded from the air until cold. The retorts, while hot, are again charged with another batch of blood and potashes. The operation must be a continuous one—charging about every four hours, night and day. The mass that has been removed from the retorts is to be placed when cold in an iron pan, and mixed with water brought near the boiling point; stirring the mass well, so as to dissolve out of it all the soluble salts. It is then to be placed upon a filter, the carbon being well washed with water, so as to obtain all the salt from it. The solution is then treated in the usual way, so as to obtain crystallised ferrocyanide of potassium. The insoluble carbon may be dried and granulated, and sold to the sugar-refiners as a decolorator, or it may be mixed with half its weight of sulphuric acid, and used in the purifier for arresting the ammonia, when it will become a valuable manure. Instead of making use of an open furnace for heating the retorts, steam, at a very high pressure, may be used, and passed directly through the mass in the retort.

Peat or seaweed might be mixed with the animal substances in the proportion of one-half the vegetable to the animal matter. The saline ingredients of the mixture might be varied according to the object sought to be obtained. Thus, when cyanogen compounds were desired, the inventor would use potash; but when ammonia was wanted, he employed lime instead of potash, such lime being either the common or chalk lime, or that obtained from the silica strata of the lower chalk, or, lastly, that from the magnesian limestone formation, or an admixture of them; or he would use soda in place of potash, or cyanogen and lime instead of lime and potash.

The inventor claimed for the distillation of organic substances (by the methods described) mixed with the saline or earthy substances indicated, so as to obtain simultaneously, and by one operation, compounds of ammonia and cyanogen, or of ammonia only.

JOHN ZUILL KAY, Dundee, gas engineer, for "*Improvements in gas meters.*" Patent dated Dec. 14, 1853.

This invention relates to securing a correct water level in gas meters or apparatus for measuring or registering the flow of gas, whereby mistakes and frauds may be prevented. This the inventor proposes to effect by the introduction or formation of a separate small chamber, in communication with the water supplied to the meter. The outlet to the burners is supplied from this chamber, the discharge-pipe being carried down from the top of the meter to a very short distance of the water line in the chamber. This tube is curved forwards towards the front side of the meter, and its open lower end is flattened or so shaped that a very slight elevation of the water level will seal the tube and stop the discharge of gas. Hence, if too much water is put into the meter, or if the meter is tilted out of the level, the discharge-pipe is shut at once.

The inventor claims for the application and use in gas meters of a "dip-tube," through which the gas passes into the outlet-pipe, the mouth of such tube being just above the water level, so as to be closed by the water when the meter is tilted or inclined forward.

EUGENE HIPPOLYTE RASCOL, Catherine-street, Strand, for "*Improvements in retorts for the manufacture of gas.*" Patent dated Dec. 15, 1853.

The improvements (which were communicated to the patentee) consist in the construction of retorts of fire-bricks, or blocks of fire-clay, so formed as to dovetail, overlap, or interlock into each other, and united by cement—the form of the bricks being adapted to the shape of the retort. The patentee considers that such retorts would possess greater durability than those constructed of iron, while the contraction and expansion by heat or cold would be more uniform.

He claims simply for introducing the dovetail principle.

PAUL WAGENMANN, Bonn, Rhenish Prussia, for "*Improvements in the manufacture of liquid hydro-carbons and paraffine.*" Patent dated Dec. 20, 1853.

These improvements consist in breaking the coals or bituminous slate into pieces of about the size of a walnut, and in sprinkling them, if they are very sulphurous, with water. They are then taken to a drying furnace, constructed as follows:—A space, by preference of 200 feet in length and 20 in width, is intersected by walls 2 feet high at the distance of every 4 feet. These walls are bound together by arches of one brick in thickness, and on these arches the coals are spread.

The space below the arches is filled up with the residue from the retorts.

The coal or bituminous slate, when dried, is distilled in retorts, which are in so far different from those used in gas works that the pipes for letting out the produce of distillation are on the opposite ends to those where the fire doors are. Over each fire are two retorts, each, by preference, of about 8 feet by 2, with an opening of 5 inches to let out the produce of distillation. The fire runs below the retorts, in a direction from front to back, the fire bars extending only part of the way.

The inventor prefers arranging a furnace, consisting of eight fires and sixteen retorts, around one chimney, by which means the flame is led from one fire to another, and the retorts are heated by a graduated heat.

The produce of distillation of the sixteen retorts meet together in one iron pipe about 80 feet long and 2 feet diameter, which is surrounded by another, so that cold water can run between the two pipes for cooling purposes.

The gases, after having passed this pipe, enter into two cylinders about 12 feet in height and 4 feet in diameter. These cylinders are filled with iron-wire chips.

The gases, after having passed the cylinders, pass through another iron pipe, 40 feet high, into the air. This pipe is furnished with an instrument for regulating the draught.

The produce of distillation runs into a general reservoir, and is so arranged that the condensed productions will have an average heat of 30° Centigrade. The oils separate themselves here from the ammoniacal water.

The ammoniacal water is thrown over the cooled residue of the drying furnaces, and mixed with it, which produces a good manure.

The arranging of a succession of retorts around the same chimney, offers considerable facility in working, as the heat of one furnace, when no longer required to act on its own retorts with the degree of force previously exerted, may be turned into the next fireplace, and thus gradually bring up the heat of the retorts over that fire. The heat is conducted from one furnace to another by means of two flues, one of which communicates directly with the chimney and the other with the following furnaces; so that, when the first is opened and the other closed, the fire passes immediately into the next furnace. The products which are distilled off are conducted away from the back ends of the retorts; and the several retorts are connected to one receiving-pipe of about two feet diameter; and the products of about 100 lb. to 150 lb. of the dried bituminous matter are distilled over by a retort in about 6 or 8 hours; and the receiving-pipe referred to is surrounded by a larger one, into and through which cold water is run. The gases passing from this pipe enter, as before explained, into two cylinders filled with wire chips, and pass through another pipe, about 40 feet high, into the air.

The tar obtained is mixed in iron vessels for one hour, say in quantities of 250 gallons, with 10 gallons of a solution of sulphate of iron, at a temperature of 28° to 30° Centigrade; and, after three hours, the oils are separated from the solution which during that time has absorbed the hydro-sulphate of ammonia from the tar. The tar is now placed in an iron boiler, capable of containing 300 gallons, heated by an ordinary furnace, and connected by another very strong steam boiler, worked at a pressure of 80 lb. to the inch, and from which a stream of steam, one-sixth of an inch in diameter, is poured upon and into the tar, and so distils it.

The tar, after being separated from the ammonia, is distilled, and the product of distillation is cooled by the means of a lead pipe of about 100 feet long and four inches wide, in a cooling apparatus of 7 feet high by 3 wide. On account of the hot steam, the water for cooling will become warm, and must, therefore, be continually replaced by other cold water, but in such manner that the water remains always lukewarm. The product of distillation is divided into three qualities, viz.:—

1. From the beginning of distillation till it comes to 0·865 specific gravity.
2. From 0·865 to 0·900.
3. From 0·900 to 1·930.

The product No. 1 is mixed up for half an hour with about seven per cent. sulphuric acid and two per cent. of hydrochloric acid, and in mixing machines of lead at a temperature of 25° Centigrade. Three hours afterwards the oil is taken off and washed with a solution of caustic soda, at a temperature of 60° Centigrade. It is left two hours, and then separated from the solution, and distilled in a similar vessel to that before used in the distillation of the tar.

In the still is mixed two per cent. of concentrated solution of soda. After the distillation, the oils are light yellow, and give an average weight of 0·815 to 0·825 specific gravity. These oils are known in the trade under the name of "photogine," or "mineral oil."

To correct the smell, the oils should be washed with two per cent. of sulphuric acid of 60° Beaumé, and half per cent. of hydrochloric acid. They should then be separated from those acids, and washed with one per cent. concentrated solution of caustic soda.

The oils No. 2 are treated in the same manner, but with the addition of one per cent. sulphuric acid, and half per cent. of hydrochloric acid, at a temperature of 35° Centigrade. The distilled produce, from the commencement of the process until it has reached a specific gravity equal to 0·865, is added as a lighter oil to No. 1. The second part of the produce, which commences with a specific gravity of 0·865, and ceases at 0·890, gives an oil of from 0·870 to 0·880 specific gravity, and comes into the trade under the name of "heavy mineral oils."

From No. 3 is prepared the finest oil and the paraffine candles. This oil is treated with six per cent. of sulphuric acid and half per cent. of hydrochloric acid, at a temperature of 30° Centigrade, and allowed to stand three hours. It is then separated from the acids, and washed with a solution of caustic soda of 40° Beaumé, at a temperature of 60° Centigrade, and distilled.

The oil commences to distil at a specific gravity of 0·720, and, being quite fine at 0·780, is used for cleaning clothes and washing gloves.

The oils ranging between 0·780 and 0·865 are classified under the raw oils No. 1, for another rectification with them. The oils from 0·865 to 0·900 are classified under the raw oils No. 2, to be refined with them. The other oil contains paraffine, and is taken to a cool cellar, at an average temperature of 12° Centigrade, where it remains in iron butts for about eight days. After this time the paraffine is separated from the oil by means of a centrifugal machine, and cast in cakes, and pressed in a cold hydraulic press, afterwards melted and mixed half an hour, at a temperature of 80° Centigrade, with fifty per cent. of sulphuric acid. Two hours afterwards the acid is taken away, then separated and washed in water. It is then heated and cast in cakes; then taken to a hydraulic press heated by means of steam, and pressed warm between hair-cloths; afterwards again melted and mixed with 150 per cent. of sulphuric acid for half an hour, at a temperature of 70° Centigrade. Two hours afterwards the said acid is drawn off, and the paraffine is washed in water. After this it is melted with half per cent. of stearine, and mixed with a solution of one per cent. of caustic potash of 40° Beaumé; and after two hours the remaining impurities have mixed with the stearine and the caustic potash, and are drawn off. It is then boiled with a strong solution of oxalic acid of 5° Beaumé, with the addition of 1½ per cent. of stearine; and when clear, is cast in cold forms or candle-moulds, at a temperature of 95° Centigrade. Where acids are used, the vessels employed are made of lead; and where alkalis are used, the vessels are made of iron. Except in the cases mentioned, all the sulphuric acid used by the inventor are mixed with half per cent. hydrochloric acid, and possess a specific gravity of 66° Beaumé.

Frederick Crace Calvert, Manchester, professor of chemistry, for "*Improvements in the treatment of naphthas and other volatile hydro-carbons, and in the application of the same to various useful purposes.*" Patent dated Dec. 27, 1853.

The patentee thus describes his invention:—"Finding that pure benzoin, and some of the volatile hydro-carbons obtained by the dry distillation of bituminous coal, and shales which also contain benzoin, possess, to a high degree, the property of dissolving fatty or oily matters, I propose to apply this property to various useful purposes. In order to render the various products that contain benzoin suitable for their several applications, I submit them to the following treatment, the object of which is to destroy or remove some of the carburetted hydrogen which is mixed with them, and which, not being sufficiently volatile, interfere with the application of benzoin. I take coal and shale naphthas (I prefer the limpid coal naphtha of commerce), and put it into a suitable earthenware or leaden vessel, and add to it sulphuric acid in small quantities, until no more coloration is produced; consequently the quantity of acid employed will vary with the relative degrees of purity of the coal or shale naphtha. I then wash the naphtha so treated with pure water, or with a solution of an alkali, and submit it to distillation in an ordinary still. These operations are to be repeated until it is sufficiently pure for the purpose to which it may be applied. For certain purposes, on a large scale, it is only necessary to take the commercial coal naphtha, and distil it at a temperature which does not exceed 212° Fahrenheit. This purified naphtha is applied to the removal of spots and stains caused by fatty or oily matter, from cotton, woollen, silk, and other fabrics—no odour remaining on the fabric operated on. It also may be used in the removal of stains from hair, furs, and feathers, and for cleaning gloves and other articles of leather, and for the removal of marks made by farmers upon sheep, the cleaning of machinery, &c.; and it is for such applications the inventor claims."

LIST OF ENGLISH PATENTS GRANTED, CONNECTED WITH THE MANUFACTURE OF GAS.

F. A. Winsor. "Improved oven, stove, or apparatus, for the purpose of extracting inflammable air, oil, pitch, tar, and acids, and reducing into coke and charcoal, all kinds of fuel, which is also applicable to various other useful purposes." May 8, 1804.

E. Heard. "Certain improvements in the means of obtaining inflammable gas from pit coal in such state that it may be burned without producing any offensive smell." June 12, 1806.

F. A. Winsor. "An improved oven, stove, furnace, or apparatus, for the extracting of inflammable air or gas, and oil, tar, acetous and ammoniacal liquors, from different kinds of fuel, for reducing such fuel into coke and charcoal, and for completely purifying such inflammable air or gas of its odour during a state of combustion." Feb. 20, 1807.

F. A. Winsor. "Certain improvements upon his former patent oven, stove, or apparatus, for carbonising all sorts of raw fuel and combustibles, and reducing them into superior fuel, coke, and charcoal, as well as for extracting and saving during the same process, the oil, tar, pyroligneous or vegetable acid, and ammoniacal coal liquors; and for extracting and refining all the inflammable air or gas, so as to deprive it of all disagreeable odour during combustion, and rendering the gas itself salutary for human respiration, when properly diluted with atmospheric air." Feb. 7, 1809.

J. Stancliffe. "Certain improvements in apparatus for combination and condensation of gases and vapours applicable to processes of distillation." April 6, 1810.

J. Maiben. "Certain apparatus for making carbonated hydrogen gas from pit coal, and for using the same for lighting mills, factories, houses, shops, lamps, &c.: the lights being regulated by means of syphons." May 2, 1810.

John Taylor. "A mode or means of producing gas to be used for the purpose of affording light." June 13, 1815.

Samuel Clegg. "An improved gas apparatus." Dec. 9, 1815.

J. Atkinson. "Improvements in or on lustres, chandeliers, lanterns, and lamps, of various descriptions, and in the manner of conveying gas to the same." Feb. 6, 1817.

D. Wilson. "Gas-light apparatuses, processes, and philosophical instruments." March 1, 1817.

W. Bound and W. Stone. "For a method of applying certain apparatus for converting the fuel used for heating retorts of gas-light apparatus into coke or charcoal." May 17, 1817.

R. F. Brain. "Improvement or apparatus calculated to obtain or generate gas, in a more economical manner than heretofore, from coal or any other article, material, or substance, for lighting or heating houses, manufactories, or other places where light or heat is required." July 10, 1817.

R. Phillips. "A method of purifying gas for the purpose of illumination." July 19, 1817.

J. Perks. "Improvements in the apparatus for manufacturing, purifying, and restoring gas." Aug. 5, 1817.

W. Stratton. "Improvements on certain part or parts of gas apparatus." Dec. 5, 1817.

A. H. Holdsworth. "Improvements on gasometers." Dec. 19, 1817.

G. H. Palmer. "A mode of purifying certain descriptions of gases." Jan. 15, 1818.

S. Clegg. "An improved gasometer or gasholder." July 24, 1818.

J. Grafton. "A process or method of making carburetted hydrogen gas for the purpose of illumination." Nov. 10, 1818.

J. Simpson. "A method or methods calculated to convey gas used for illumination to the burners, and at the same time suspend the burners, or lamps, lustres, or other frames or holders in which the burners are placed." Feb. 9, 1819.

J. Outhett. "Improvements in the construction of, and arrangement and combination of, the series of apparatus used for the production of gas from pit coal and other substances, and for purifying, storing, and delivering for the purpose of illumination, and for the application of certain parts of the said improved apparatus to other useful purposes." March 23, 1819.

U. Haddock. "A method of producing inflammable gas from pit coal, superior in purity to any other inflammable gas produced from the same substance by the method or methods hitherto in practice." May 1, 1819.

J. Gundry and E. and J. Neave. "The application of various gases or vapours to certain useful purposes." Nov. 1, 1819.

J. Grafton. "A new and improved apparatus for purifying gas used for illumination." Nov. 18, 1819.

J. Malam. "Certain improvements in gas meters." May 11, 1820.

J. Grafton. "A new and improved method or methods of distilling the products of coal, and carbonising coal, in the process of making gas used for the purpose of illumination." July 11, 1820.

B. Gibbins and C. H. Wilkinson. "An improved retort or vessel for making coal or other gas, and for distillation, evaporation, and concentration of acids and other substances." Sept. 8, 1821.

W. Caslon. "Certain improvements in the construction of gas-ometers." May 10, 1823.

W. Vere and Sam. Crane. "Certain improvements in the manufacture of inflammable gas." June 30, 1823.

H. C. Jennings. "An instrument or machine for preventing the improper escape of gas, and the danger and nuisance consequent thereon." Aug. 14, 1823.

J. Malam. "A new mode of applying certain materials, hitherto unused for that purpose, to the constructing of retorts, and improvements in other parts of gas apparatus." Aug. 18, 1823.

S. Broadmeadow. "An improved method of manufacturing and purifying inflammable gases, by the admission and admixture of atmospheric air." Jan. 19, 1824.

C. Demeny. "An apparatus containing within itself the means of producing gas from oil and other oleaginous substances, of burning such gas for the purpose of affording light, and of replacing the gas consumed." March 22, 1824.

J. H. Ibbetson. "Certain improvements in the production or manufacture of gas." May 15, 1824.

P. Taylor. "Certain improvements in apparatus for producing gas from various substances." June 15, 1824.

J. Hobbins. "Improvements in gas apparatus." June 22, 1824.

Sir W. Congreve. "An improved gas meter." Dec. 14, 1824.

S. Crosley. "An improvement in the construction of gas regulators, or governors." Feb. 1, 1825.

R. Witty. "An improvement in the method of lighting by gas, by reducing the expense thereof." March 25, 1825.

C. Ogilvy. "An apparatus for storing gas." April 20, 1825.

J. F. Gravier. "A method or methods of regulating the emission or flow of gas from portable reservoirs." May 14, 1825.

Ledsam and Cook. "Improvements in the production and purification of coal gas." May 31, 1825.

E. Luscombe. "A method of manufacturing or preparing an oil or oils extracted from certain vegetable substances, and the application thereof to gas light and other purposes." Dec. 6, 1825.

J. F. Daniell. "Improvements in the manufacture of gas." Feb. 1, 1827.

C. B. Coles and W. Nicholson. "A new method of constructing gasometers, &c." Feb. 20, 1827.

J. F. Ledsam. "An improvement for purifying coal gas by means not hitherto used for that purpose." March 2, 1827.

H. Pinkus. "An improved method or apparatus for generating gas to be applied to lights and other purposes." Aug. 15, 1827.

H. Pinkus. "An improved method of purifying carburetted hydrogen gas for the purpose of illumination." Nov. 17, 1827.

R. Witty. "Certain improvements in apparatus for making and supplying coal gas for useful purposes." June 10, 1828.

John Brunton. "Improvements in the apparatus for manufacturing coal gas and coke, and also improvements in the method of arranging such apparatus." Oct. 2, 1828.

E. Heard. "Improvements in illumination, or producing artificial light." Feb. 12, 1829.

E. Cowper. "Certain improvements in the manufacture of gas." Feb. 12, 1829.

J. Collier and H. Pinkus. "An improved method and apparatus for generating gas for illumination." April 5, 1830.

J. Down. "Certain improvements in making gas for illumination, and in the apparatus for the same." Aug. 5, 1830.

M. Donovan. "An improved method of lighting places with gas." Oct. 6, 1830.

S. Clegg. "An improved gas meter." Oct. 20, 1830.

T. Spinney. "Certain improvements in apparatus for manufacturing gas for illumination." June 4, 1831.

S. Crosley. "An improved gas meter." Oct, 3, 1831.

George Lowe. "An improvement or improvements in and connected with the manufacture of gas for illumination." Oct. 12, 1831.

George Lowe. "An invention for increasing the illuminating power of such coal gas as is usually produced in gas works; also for converting the refuse products from the manufacture of coal gas into an article of commerce not heretofore produced therefrom; and also for a new mode of conducting the process of condensation in the manufacture of gas for illumination." June 9, 1832. (Renewed for five years.)

T. Spinney. "Invention of an improved earthenware retort for generating gas for the purpose of illumination." Nov. 13, 1832.

J. Dickson and J. Ikin. "Improvements in the process of making gas from coal or other substances." Feb. 6, 1833.

M. Berry. "An improvement or improvements in the making or constructing of gas meters." March 19, 1833.

S. Hutchison. "Machinery or apparatus for manufacturing gas for illumination, &c." Oct. 12, 1833.

R. Barnes. "A certain machine and apparatus for producing, by the combustion of gas or oil, heated air for warming the interior of buildings, and which machine and apparatus may be applied at the same time to give light." Oct. 19, 1833.

J. B. Mollerat. "Certain improvements in the manufacture of gas for illumination." Sept. 25, 1834.

J. Brunton. "Certain improvements in the construction of retorts for generating gas for the purpose of illumination." March 25, 1835.

H. F. Bacon. "An improved apparatus for regulating the flow of gas, &c." April 9, 1835.

A. Damoulin. "Certain improvements in gas apparatus." May 19, 1835.

J. Malam. "Certain improvements in gas meters, and in the apparatus for generating gas for illumination." June 2, 1835.

E. Carter. "An improved apparatus for regulating the supply of gas to the burners, and for the stopping off the same; applicable also as a cock in drawing off or regulating the flow of other fluids." June 22, 1835.

H. Phillips. "Certain improvements in purifying gas for the purpose of illumination." Aug. 17, 1835.

G. H. Palmer. "An improvement in the purification of inflammable gases, &c." March 8, 1836.

W. Barnett. "Certain improvements in apparatus for generating and purifying gas for the purposes of illumination." June 22, 1836.

S. Brown. "Certain improvements for generating gas, which improvements are also applicable to other useful purposes." July 14, 1836.

B. Patterson. "Certain improvements in the construction of meters or apparatus for measuring gas or liquids." Nov. 12, 1836.

J. B. Mollerat. "An improvement or improvements in the manufacture of gas for illumination." May 2, 1837.

H. A. Tennerson. "An improved construction of the portable vessels used for containing portable gas, &c." Oct. 19, 1837.

H. F. Bacon. "An improved apparatus for regulating the flow or supply of gases." Jan. 11, 1838.

H. F. de Bouffet Montauban and J. C. de Medeiros. "Certain improvements in the means of producing gas for illumination, and in apparatus connected with the consumption thereof." Feb. 28, 1838.

E. Cobbold. "Certain improvements in the manufacture of gas for affording light and heat, &c." May 5, 1838.

S. Clegg. "Improvements in gas meters." June 7, 1838.

N. Defries. "Improvements in gas meters." June 27, 1838.

A. A. Croll. "Improvements in the manufacture of gas for the purpose of affording light." July 26, 1838.

G. H. Palmer and C. B. Paterson. "Certain improvements in the mode of preparing, constructing, and adapting certain parts of gas meters." July 28, 1838.

H. F. Bacon. "An improvement or improvements in apparatus for regulating the flow, &c." Jan. 17, 1839.

G. H. Palmer and C. B. Paterson. "Certain improvements in gas meters." March 6, 1839.

E. O. Manby. "A new method of manufacturing gas for the general purpose of illumination." May 8, 1839.

De Val Marino. "Certain improvements in the manufacture of gas, and in the apparatus employed for consuming gas for the purpose of producing light." June 22, 1839.

J. Hemming. "Improvements in gas meters." July 16, 1839.

J. Hanson. "Certain improvements in apparatus for measuring and regulating the quantity of gas or water, or other fluid, passed through the same." July 24, 1839.

A. A. Croll. "Improvements in the manufacture of gas, and in reconverting the salts used in purifying gas, and improvements in the manufacture of ammoniacal salts." Nov. 22, 1839.

G. Lowe and J. Kirkham. "Improvements in the manufacture of gas for the purpose of illumination." Dec. 4, 1839.

J. Hanson. "Certain improvements in meters for measuring volumes of gas, water, and other fluids, when passed through them, and in cocks and valves." Feb. 22, 1840.

S. W. Smith. "Improvements in the apparatus for supplying and consuming gas." June 9, 1840.

The following are Unexpired Patents.

A. A. Croll. "Certain improvements in the manufacture of gas for the purpose of illumination, and for the preparation and manufacture of materials to be used for the purification of gas." July 29, 1840.

C. Botton. "Certain improvements in gas meters." Dec. 16, 1840.

J. Barker. "Improvements in gas meters." Dec. 23, 1840.

George Lowe. "Improved methods of supplying gas under certain circumstances, and of improving its purity and illuminating power." March 16, 1841.

G. Gurney. "Improvements in the production and diffusion of light." March 25, 1841.

De Charlieu. "Improvements in preparing matters to be consumed in obtaining light, and in the construction of burners for burning the same." April 27, 1841.

Simpson and Irvin. "An improved mode of producing light, and of manufacturing apparatus for the diffusion of light." June 17, 1841.

Miles Berry. "A new or improved engine, machine, or apparatus, for producing or obtaining motive power by means of gases, &c." June 21, 1841.

F. T. Philippi. "Certain improvements in the production of sal ammoniac, and in the purification of gas for illumination." July 21, 1841.

J. Grafton. "Improved method of manufacturing gas." Sept. 4, 1841.

L. Hebert. "Certain improvements in apparatus and metals used in the manufacture of gas for illumination, also improvements in the apparatus for burning the same." Sept. 8, 1841.

J. Dodds. "Certain improvements in the modes or methods of supplying gas for the purposes of illuminating towns and other places." Nov. 13, 1841.

R. Henderson. "Certain improvements in apparatus for heating and lighting apartments, and for other like purposes." Dec. 9, 1841.

Le Petit. "Improvements in the manufacture and supply of gas." Jan. 11, 1842.

W. Tindall. "A new and improved method of extracting or manufacturing, from a certain vegetable substance, certain materials applicable to the purposes of affording light and other uses." Jan. 19, 1842.

G. Boccius. "Certain improvements in gas, and on the methods in use, or burners for the combustion of gas." Jan. 27, 1842.

J. Warwick. "An apparatus called a gasoscope, and intended to show the presence of bicarburetted hydrogen, &c." March 7, 1842.

T. Edge. "Certain improvements in apparatus for measuring gas, water, and other fluids." May 9, 1842.

H. Phillips. "Improvements in purifying gas for the purposes of light." May 31, 1842.

— Crutchett. "Improvements in manufacturing gas, and in apparatus for consuming gas." July 12, 1842.

F. T. Philippi. "Certain improvements in sal ammoniac purification of gas for illumination." July 21, 1842.

G. Gurney. "Certain improvements in apparatus for producing, regulating, and dispersing light and heat." Aug. 18, 1842.

P. Pelletan. "Improvements in the production of light." Nov. 2, 1842.

F. A. Winsor. "New apparatus for the production of light." Jan. 26, 1843.

H. Phillips. "Improvements in removing impurities from coal gas for the purposes of light." Jan. 26, 1843.

C. Brook. "Improvements in the apparatus used for purifying gas." Feb. 17, 1843.

A. A. Croll and W. Richards. "Improvements in the manufacture of gas for the purposes of illumination, and in apparatus used when transmitting and measuring gas or other fluids." March 16, 1843.

J. Malam. "Improvements in the manufacture of gas retorts, and in the modes of setting gas retorts." March 16, 1843.

F. Allman. "Improvements in apparatus for the production and diffusion of light." June 3, 1843.

P. Pelletan. "Improvements in the production of light." Sept. 6, 1843.

G. Scott. "Improvements in the manufacture, purification, and combustion of gas or gases." Nov. 16, 1843.

B. Buret and F. David. "Improvements in the manufacture of gas." Jan. 30, 1844.

A. A. Croll and W. Richards. "Improvements in the manufacture of gas for the purpose of illumination, and in apparatus used when transmitting and measuring gas." March 7, 1844.

J. Murray. "A new method of using and applying artificial gas made from coal, oil, or other substances, for lighting and ventilating caverns, pits, or mines, &c." April 10, 1844.

R. Corden and S. Smith. "An improved economical apparatus for making gas for illumination." April 30, 1844.

Jos. Cowen. "Certain improvements in making retorts for generating gas for illumination." June 4, 1844.

J. Murdoch. "Certain improvements in the manufacture of gas, and in the apparatus employed therein." June 4, 1844.

William Cormack. "A new method or plan for purifying coal gas." Aug. 15, 1844.

J. Malam. "Certain improvements in purifying coal gas and increasing its illuminating power, and preventing the circulation of it being impeded by frost." Sept. 26, 1844.

J. Murdoch. "Certain improvements in the manufacture of gas, and in the apparatus employed therein." Feb. 20, 1845.

J. Wright. "Certain improvements in apparatus for the production and diffusion of light." March 10, 1845.

W. Cormack. "Improvements in purifying gas." April 10, 1845.

H. Phillps. "Improvements in purifying gas." April 15, 1845.

W. Radley. "Certain improvements in the manufacture of gases, &c." May 3, 1845.

John Constable. "Certain improvements in the manufacture of gas for lighting and heating." May 24, 1845.

W. Pollard. "Certain improvements in the production of combustible gases, and in the application of the same as fuel." June 23, 1845.

A. A. Croll. "Improvements in manufacturing, measuring, and transmitting gas, and in obtaining ammoniacal and other products from the refuse matters of such manufacture." June 26, 1845.

F. C. Hills. "Improvements in purifying gas for illumination, and obtaining a valuable product in the process." Aug. 9, 1845.

H. Francis. "Improvements in the manufacture of gas." Oct. 9, 1845.

H. Clark. "Certain improvements in the preparing of materials to be used for producing illumination." Oct. 31, 1845.

J. R. Johnson. "Improvements in purifying gas, and in the treatment of the products of gas works." Dec. 20, 1845.

J. P. Gillard. "Improvements in the production of heat in general." Feb. 11, 1846.

G. H. Bovill and R. Griffiths. "Improvements in apparatus for working railways, canals, mines, &c., and transmitting gas for lighting purposes." March 11, 1846.

G. Lowe. "Extension for five years of patent for increasing the illuminating power of such coal gas as is usually produced in gas works, &c." June 4, 1846.

Sir A. W. Hillary, Bart. "An improvement in the manufacture of gas." July 23, 1846.

R. C. Burleigh. "Certain improvements in artificial light." Aug. 28, 1846.

G. Lowe. "Improvements in the manufacture of, and in burning, gas, and in the manufacture of fuel." Oct. 8, 1846.

R. Walker. "Certain improvements in the apparatus for the manufacture of gas, &c." Jan. 26, 1847.

J. Leslie. "Improvement in the combustion of gas for the purposes of light." March 22, 1847.

S. White. "A new means of producing gas, both as to the apparatus and materials from which the gas is produced." April 15, 1847.

G. H. Palmer. "An improved method or mode of producing inflammable gases of greater purity, &c." April 17, 1847.

Isham Baggs. "Certain improvements in the production and management of artificial light." May 7, 1847.

J. Aitken. "Improvements in engines, atmospheric engines, in distilling and pumping water." May 22, 1847.

Brockedon. "Improvements in heating rooms and apartments." Sept. 9, 1847.

Richard Laming. "Certain improvements in manufacturing and purifying coal gas, &c." Nov. 4, 1847.

G. A. Michant. "Improvements in the production and application of heat, and in the manufacture of coke." Dec. 15, 1847.

J. Watson and E. Cart. "Improvements in the manufacture of gas." Feb. 14, 1848.

A. Salomons and B. Azalay. "Improvements in the manufacture of gas, tar, charcoal, and certain acids." May 26, 1848.*

Parliamentary Intelligence.

HOUSE OF LORDS—Friday, April 28, 1854.

(Before the Lord Chancellor, Earl Somers, and the Bishop of Lincoln.)

DUNCAN ET AL. *v.* WHISTON.—JUDGMENT.

The Solicitor-General and Mr. Anderson appeared for the appellants; and Mr. Rolt, with Mr. R. Palmer, represented the respondent.

This was an appeal from certain interlocutors pronounced by the judges of the Court of Session in Scotland. It appeared that the appellants are the chairman and board of directors of the Brechin Gas Light Company, and that the respondent is a gentleman of property at Fingask, but residing at Perth. The interlocutors complained of had been delivered in two conjoined actions, which were brought by the respondent to enforce the payment of three dividends of £8. 10s. each upon twenty shares of the stock of the Brechin Gas Light Company, for the purchase of which the sum paid was £109. 4s. 2d. The whole amount sought to be recovered was £25. 10s., with interest. The company, it further appeared, was originally formed in the year 1834, and upon its constitution the brother of the present respondent, a Mr. Alexander Whiston, became a holder of ten shares. In the year 1836 the company deemed it expedient to create some new stock, and of which a further ten shares were allotted to the brother, Alexander. By the terms of the company's deed no shareholder was to hold more than twenty shares; and, in case any of them became possessed of more by succession or otherwise, he was to be bound to dispose of them within two years after acquiring them; and, failing his doing so, the extra stock so held was to fall in and belong to the directors for the benefit of the company. When the additional ten shares were allotted to Mr. A. Whiston, it was intimated to him that there were some other shares which might be allotted to any friend of his. Accordingly, in January, 1837, ten shares were allotted to the respondent, and in the February following ten more were allotted to him. The signature to the contract for the first ten shares was made by the clerk of the company, who was authorised to do so by Mr. A. Whiston; and for the other ten shares no signature appeared to the contract. From that time to 1842 the dividends were paid to Mr. A. Whiston, as it was alleged, on behalf of respondent. In June of that year the respondent received a notice of the general meeting of the company, to which he said—"I beg to inform you that I have nothing to do with it. There are several shares put down in my name; these do not, nor ever did, belong to me, but to my brother, Mr. Whiston, of Parkhill; so, for the future, you may save yourself the trouble of sending me any more circulars. I beg also to state that, had I been aware of the contents of the above-mentioned letter before I opened it, I should not have received it, as I make a point of not receiving any letters which are not prepaid." On this the directors withheld the payment of the dividends, although requested subsequently by the respondent to pay them to his brother on his behalf, on the ground that the shares should be held in the name of a different person, who would undertake the responsibility attached to them. The respondent then brought his action to recover the dividends. The Lord Ordinary decided that the repudiation of the shares by the respondent, notwithstanding his withdrawal of it, warranted the company in holding back the shares from him. On appeal to the Inner House, that court reversed the decision of the Lord Ordinary, and decided that the respondent was entitled to the shares and dividends. The present appeal was against that decision. The grounds on which the appellants resisted the respondent's claim was, that in point of fact he was not the beneficial holder of the shares, and was only set up as a nominal holder by his brother, Mr. A. Whiston, to enable him to hold forty shares, contrary to the contract of the company. The respondent maintained that he was a registered shareholder, and open to all the liabilities of a partner, and therefore entitled to the privileges and advantages of a partner.

The Lord Chancellor, at the conclusion of the arguments, moved the judgment of their lordships, and said that, in this case, it appeared that the company was to be divided into 360 shares of £5 each; and then, by the third article of their contract, it was thus declared, "No partner shall hold more than twenty shares of the capital stock; and in case any of the partners shall acquire more, by succession or otherwise, he shall be bound to dispose of them within two years after acquiring right thereto, and, failing his doing so, the extra stock so held shall then fall and belong to the directors for the benefit of the company; and the directors shall be entitled so to declare by a minute entered in the books of the company." Now, let him ask what was the meaning of that clause? Why, it was clearly inserted with the purpose of prohibiting any one partner from holding or being interested in more than twenty shares. And this was manifestly the obvious reason of this resolution—namely, that by extending the partnership, by thus limiting the number of shares to be held by one person, they should increase the interest in the success of the company among a larger amount of the public than would be the case had it been admissible for a partner to become the holder of a great many shares. The noble and learned lord then went through the facts of the case, and proceeded to remark that the short case was—Alexander Whiston was residing in Scotland, and, being already a holder of

* Outlines of the specifications of all English patents connected with the manufacture of gas, granted since June 1, 1848, have been given in this Journal as they were enrolled.

twenty shares, took another twenty shares for his brother Thomas, who was abroad. Upon these shares Alexander had received several dividends as the representative of his brother. In the course of time that brother returned home, and in June, 1849, a circular, calling a general meeting, was sent to him, when he wrote back, saying that, although there were some shares in his name, yet that they did not belong to him, but to his brother Alexander. It was quite clear, however, on looking at the matter, that there were twenty shares standing in the books of the company in the name of Thomas Whiston. What, then, ought the company to have done upon the receipt of this letter from that gentleman? Why, they ought to have at once intimated to Alexander Whiston that it was contrary to the rules that he should hold more than twenty shares, and that he must transfer the second twenty into another name. But this course had not been adopted for some time, till at length the manager forwarded to him a copy of a resolution of the board, referring to the letter of Thomas denying that he held any shares in the company, and requesting the manager to acquaint Alexander they required that he should transfer the second twenty shares into the name of some other party, as his brother Thomas had denied his responsibility in respect of them. Now Alexander, it would seem, had admitted his responsibility as to these second twenty shares; but the directors said, "No, it is contrary to the rules of the company for any one person to hold more than twenty shares, and therefore we cannot accept your further responsibility; and there must be another name on our books in regard to those shares." Now, this was clearly misleading Alexander. On the 6th of December following a further dividend became due, when Thomas wrote to the company, authorising them to pay that and the other dividends to his brother Alexander on his account. The manager, however, wrote back to the effect that he did not think the company would pay him, as in his former communication he had repudiated any interest in the concern by absolving himself from all responsibility in respect of them. Now, in his opinion, the company, who afterwards refused to pay, had made a mistake; for, as soon as the brother Thomas had admitted his responsibility, which he had done by claiming the dividends, they ought to have known that they had an independent partner. Looking at all the circumstances of the case, he was prepared to advise their lordships that the interlocutor of the court below was correct, and that it ought to be affirmed by that house. At the same time, he could not but express his regret that so frivolous a case, where so small a sum as £25. 10s. was in despute, should have been, at so large an expense, brought to that house.

The interlocutor of the court below was then affirmed, and the appeal dismissed.

Legal Intelligence.

COURT OF QUEEN'S BENCH, WESTMINSTER.

THURSDAY, JUNE 22, 1854.

(Sittings in Banco, after Term, before Mr. Justice COLERIDGE, Mr. Justice WIGHTMAN, Mr. Justice ERLE, and Mr. Justice CROMPTON.)

THE GUARDIANS OF THE POOR OF THE OLDHAM UNION *v.* THE MAYOR, ALDERMEN, AND BURGESSES OF THE BOROUGH OF OLDHAM.

This was a special case for the opinion of the court, the question being whether the corporation of Oldham were bound to supply the workhouse of the Oldham union with an ample supply of gas and water without charge. It appeared from the case that the borough of Oldham was constituted a parliamentary borough by the 1st and 2nd Wm. IV., c. 45, and consisted of the townships of Oldham, Chadderton, Crompton, and Royton. The township of Oldham was, in the year 1849, by royal charter, created a municipal borough under the Municipal Corporations Act, the 5th and 6th Wm. IV., c. 76, and 7th William IV. and 1st Vic., c. 78. In 1847 the Oldham Poor-law Union was formed, under the 4th and 5th Wm. IV., c. 76, and consisted of the four townships forming the parliamentary borough, together with the townships of Accrington, Middleton, Thornham, and Tonge, which were without both the parliamentary and municipal boroughs. In 1849 the present union workhouse was erected. It was locally situated within the township of Oldham, but it contained inmates from all the eight townships comprehended within the union. In the first instance the union workhouse was supplied with gas and water by a verbal agreement made with the Oldham Gas and Water Company; but in the year 1853 an act (16th and 17th Vic., c. 42) was passed, called the Oldham Corporation Gas and Water Act, which, by the 8th section, transferred the gas and water works from the Gas and Water Company to the corporation. The question now was, whether the corporation were bound under that act to supply the workhouse with an ample supply of gas and water without charge; and this depended on the construction to be put by the court on the eighth section. That section enacts, "That the corporation may from time to time, on such terms and conditions as they think fit, supply gas or water gratuitously for any purposes of public advantage within the limits of the act; and the corporation shall at all times afford an ample supply of gas and water, without charge, to all hospitals and infirmaries within the limits of this act, and all baths and wash-houses, and all buildings, within those limits respectively, maintained at the expense of the borough rates, or the rates for the relief of the poor, or other rates raised within those limits."

Mr. J. A. RUSSELL, on the part of the guardians, contended that they were entitled to the supply free of charge, upon the ground that the workhouse was locally situated within the borough, and was maintained at the expense of rates for the relief of the poor.

Mr. H. HILL, Q.C., contended that, as the rates by which the workhouse was maintained were not raised exclusively within the borough, but throughout all the townships contained in the union, the workhouse was not such a building as was contemplated by the act.

The COURT decided in favour of this latter construction of the act. The object of the act was to enable the corporation to supply gas and water gratuitously for any purposes of public advantage within the limits of the act. It gave power to afford a gratuitous supply of gas and water to all hospitals and infirmaries within the limits of the act, and all baths and wash-houses, and all buildings within those limits; but that general power was limited by what followed—"maintained at the expense of the borough rates, or the rates for the relief of the poor, or other rates raised within those limits." The intention was not to charge upon the borough the expense of supplying all the parishes in the union with gas and water. To give that construction to the act would be to encourage the addition of out-parishes to the union, which would be injurious to those who contributed to the borough fund.—Judgment for the defendants.

COURT OF COMMON PLEAS, WESTMINSTER.

SATURDAY, JUNE 24, 1854.

(Before Sir J. JARVIS, Chief Justice.)

BROADBENT *v.* THE IMPERIAL GAS COMPANY.

Mr. M. CHAMBERS, Q.C., Mr. HILL, Q.C., and Mr. RUSSELL, were for the plaintiff; the defendants were represented by Mr. Sergeant BYLES, Mr. E. JAMES, Q.C., and Mr. WILDE.

Mr. RUSSELL opened the pleadings. The declaration stated that the plaintiff was possessed of certain lands and a dwelling-house and premises, in which he carried on his trade as a market gardener; and that the defendants, the Imperial Gas Light and Coke Company, were possessed of certain works and premises near the plaintiff; and the declaration alleged that the defendants carried on their business so negligently that, in the course of manufacturing gas and coke, they caused large quantities of smoke and vapours to escape from their works, and to come therefrom to the lands and premises of the plaintiff, which were, in consequence thereof, rendered unfit to be used as market gardens.

The defendants pleaded "Not guilty."

Mr. M. CHAMBERS, in opening the case, said that this was an action brought by the plaintiff, a market gardener, in consequence of a very serious and, perhaps, a ruinous injury that he had sustained by reason of the defendants having recently built, near his premises, a large retort-house for the manufacture of gas, the vapours from which had destroyed the vegetation in his garden, had seriously damaged his business, and had prevented the beneficial occupation of his house and land. The circumstances of the case were very brief, and he had no doubt but that the jury would be satisfied that the injury which the plaintiff had sustained had been occasioned solely by the negligent manner in which the defendants carried on their business. Mr. Broadbent, in the year 1836, took a lease for twenty-one years of certain lands, with a dwelling-house, from a Mr. Gunton, and used the land for the production of flowers and vegetables for the London market. This business he carried on so profitably that in the year 1850 he obtained a renewal of the lease for twenty-one years further, dated from 1853 (the expiration of the former lease); so that his present lease would not terminate until the year 1874. When he first leased these lands and premises, there was a small retort-house at a considerable distance from his plots; and, though a little inconvenience was experienced from this retort-house, yet there was no cause of complaint as to any serious injury to the vegetation on the plaintiff's land. In the year 1851, however, the defendants erected a large retort-house, and at a distance much nearer to the plaintiff's premises, being indeed, as the jury could see by the plans, within forty feet of the garden ground. On that garden ground there was a greenhouse, in which the early vegetables were forced; and this was a very profitable part of the plaintiff's business. This new and large retort-house was not worked until the autumn of 1851; and when they began the manufacture of gas in it, a vapour was emitted from this retort-house which descended upon the plaintiff's plants, and almost completely destroyed them; and when the wind was in the east, this vapour became such an annoyance to the plaintiff that the occupation of his house became most disagreeable and uncomfortable. Such was the damage done to his business, that while, before the erection of this retort-house, he used to clear a profit of £150 a year, after paying his rent and all expenses, he was scarcely able, after this retort-house was built, to realise enough to meet the rent of his premises and land. Under these circumstances the plaintiff was compelled to bring this action. The manner in which the injury had been occasioned would be fully explained by the scientific men whom he (Mr. M. Chambers) should put into the witness-box; but he might state shortly and simply, that coal was burned in these retort-houses for four or five hours, and then drawn out in the shape of burning coke, which was extinguished by water, and when so quenched, an immense vapour escaped through apertures in the building; and it was that vapour which these scientific men would tell the jury had occasioned this serious injury to the vegetation on the plaintiff's land. These were shortly the circumstances of the case; and he felt no doubt that, after hearing the evidence, the jury would be convinced that the vapour emitted from this retort-house was solely the cause of the great injury which the plaintiff had sustained.—The learned counsel then called—

Mr. *R. A. Godwin*, architect and surveyor, examined by Mr. HILL.

Witness had prepared the plans produced of the plaintiff's premises. The old retort-house was about 80 feet in length, and it was about 325 feet from plaintiff's premises; the new retort-house was 240 feet long, and its distance from the plaintiff's premises, which were across the road, was only 40 feet. The distance of the greenhouse from the retort-house was 216 feet. There were 17 openings on each side, in the whole length of the retort-house; there were nine louver openings in the roof, on each side; and there were also nine openings at the gable-end. Witness had frequently visited the plaintiff's premises within the last two years, and had, on each occasion, observed the effluvium coming from those openings, and rolling along the ground for yards. The length to which it would be carried depended upon the state of the atmosphere, and the direction of the wind. It was a most unpleasant smell.

Cross-examined by Sergeant BYLES: Was not aware that the road between the plaintiff's premises and the retort-house had been raised within the last six or seven years.

Sergeant BYLES: It is a very fragrant neighbourhood, eh? (Laughter.)

Witness: I never observed anything else objectionable in the neighbourhood. There is a sewer—the Hammersmith sewer—which runs open into the base of these premises, and, after taking a serpentine course, discharges itself into the Counter Creek. It receives all the sewage of that part of the town. It is washed out by the tide. I believe it is eight feet wide, and deeper than that. I never remarked that it smelt. I have not remarked any very high chimneys. I don't know any acetic acid manufactory with a great chimney on the other side of the river.

Sergeant BYLES: Does the plaintiff keep his dunghill close to his house?

Witness: I suppose it is within a convenient distance.

Sergeant BYLES: But what do you call a convenient distance for a dunghill? (Laughter.) Is it within 18 feet from his house?

Witness: I should think not.

Sergeant BYLES: Well, how far then? You are the surveyor; why did n't you put the dunghill on the plan?

The JUDGE: Dunghills are generally kept close to the house, for convenience, by farmers and gardeners.

Sergeant BYLES: Some one observed to Sir Walter Scott, that the Scotch always had their dunghills close to their houses. "Yes, sir," said Sir Walter; "the Scotch are proud of their wealth; they are an ostentatious people." (Laughter.) Where is the dunghill?

Witness: The dunghill is at the back of the greenhouse. The greenhouse is 102 feet long; but whether the dunghill stands in the middle or at the end of it, I cannot tell.

Sergeant BYLES: What sort of manure do market gardeners use?

Witness: Well, the "sweeter" the manure, I think, the better for the crops.

The JUDGE: What do you mean by "sweet"?

Witness: The purer the manure the better. I don't know whether it was nightsoil that the plaintiff used. There is a sewage-manure manufactory at Stanley-bridge; but I have never experienced any offensive smell arising from it, for all the noxious effluvium is fixed by means of charcoal. There are piggeries in the neighbourhood, for all the inhabitants, I believe, keep pigs. I do not know, however, of any "concentrated" piggeries. (Laughter.) The nearest pigs are about 200 feet from the plaintiff's premises. The land in this neighbourhood has increased in value.

Re-examined by Mr. M. CHAMBERS: Since the erection of this new retort-house, however, I should think it has materially diminished. The smell of pigs would not be injurious to vegetation. I have watched the vapour coming from the retort-house, and I have observed its effects upon the vegetables. The smell was something like a brick clamp—like the vapour from a brick-kiln; it was a sulphurous smell. I have seen radishes silvered, and some perfectly withered, by this vapour; and the roses looked as if they had been submitted to the heat of an oven. I have seen 800 roses all literally charred. I knew these premises before the erection of the new retort-house, and none of the other smells—either from the pigs or the sewage manufactory—ever did any injury to the vegetation. The tall chimney on the other side of the river is fully 1¼ mile from the plaintiff's premises.

Mr. *Samuel Broadbent*, the plaintiff, examined by Mr. HILL.

Had carried on business as a market gardener, at premises in the neighbourhood of the defendants' works, for the last 21 years. Had leased those premises, and 14 acres of land attached, for 21 years from 1836, at a rent of £98 per annum, and had conducted his business so profitably, up to the time of the erection of this new retort-house, that he had obtained a renewal of the lease for a further term of 21 years, at the same rent, expiring in the year 1874. Had expended from £300 to £400 in building four rooms and erecting new stables and a shed, and £120 in the erection of a greenhouse, besides having from time to time, during his occupation of the ground, placed down all the frames and glasses necessary for his business as a gardener.

The JUDGE here suggested to the learned counsel on both sides that, as an action for nuisance was a very imperfect remedy, it would be much better to settle this by a reference, when, if it appeared that it was really a nuisance, suitable compensation could be awarded, or an arrangement made which would be mutually satisfactory. The only damages which could be obtained in this court were nominal; and to assess the real damage they must apply to a court of equity, or, if the nuisance were repeated, they would have to obtain an injunction.

Mr. Sergeant BYLES said that he had told his clients, what he now repeated—that this was not an action brought for damages, but to establish a right; and the question of damages must be subsequently raised.

The JUDGE: But suppose, brother, that you lose your verdict now?

Sergeant BYLES: Then, I suppose, we must pull the retort-house down; so that it is a much more serious question to us than an action for damages.

The JUDGE: If it be a nuisance, why, something may be done to set it right, or the plaintiff might be compensated or bought off.

After some conversation between the learned counsel and their clients, it was agreed that the matter should be referred to Sergeant Channel, with power to regulate what, if anything, should be done.

COURT OF EXCHEQUER—FRIDAY, JULY 7, 1854.

(Before the LORD CHIEF BARON and a Special Jury.)

THE IMPERIAL GAS LIGHT COMPANY *v.* THE LONDON GAS LIGHT COMPANY.

The ATTORNEY-GENERAL, Mr. BRAMWELL, and Mr. WILDE, appeared for the plaintiffs; and Sir FREDERICK THESIGER, Mr. H. HILL, Mr. BOVILL, and Mr. BUSHBY, for the defendants.

The declaration set forth that the defendants fraudulently and secretly broke into the gas pipes of the plaintiffs, and converted the gas, the property of the plaintiffs, to their own use. The defendants pleaded the Statute of Limitations, the payment of £400 into court, and "not guilty."

The ATTORNEY-GENERAL, on behalf of the plaintiffs, said that the Imperial Gas Company, for whom he appeared, was incorporated in 1821; the defendants' company, the London Gas Light Company, was established in 1834, and competed with the plaintiffs over a great portion of the same ground. He regretted to say that the present complaint on the part of the plaintiffs was one which involved very serious misconduct indeed on the part of the defendants' company. The jury were, of course, fully aware that the gas is supplied by companies by means of main-pipes, from which service-pipes branch off at various intervals to the places requiring to be supplied with gas. Where there were competing companies in the same district, it would occasionally happen that by accident or mistake on the part of the servants of the company, the service-pipes would be carried to the wrong mains—the mains frequently intersecting and coming in contact with each other. The mode in which companies conducted business in this respect was, that whenever the services of company A were discovered in mains of Company B, an account of the gas that might have been unwittingly taken by Company A was made out, and the amount carried to the credit of Company B, or payment made for the whole amount received for the gas so erroneously taken. The charge against the London Gas Light Company was, that having, in the year 1849, discovered in a multitude of cases that service-pipes for the supply of their customers had been laid into the mains of the Imperial Gas Company, they plugged up the spots at which the service-pipes of their customers had been affixed, so as to conceal the fact, and prevent discovery; and never, from that hour to the present, have they paid or made any compensation to the plaintiffs' company for the gas which they had taken. He did not charge the directors or shareholders of the defendants' company with being parties to the laying on of these services to the plaintiffs' mains, but what he did charge them with was that, in 1849, when the fact of the services being so placed came to their knowledge, they, instead of rendering an account to the plaintiffs, and coming to an honest settlement, appeared to have been startled at the amount of compensation they would have to pay, the result of an investigation they had ordered to be made having made them alive to the fact; but it had gone infinitely further than in the ordinary course of things would have arisen from the casualties of mistake and accident, which could not be prevented. It would appear that they had not the moral courage to meet the exigency of so serious a case; they shrank from it; probably they were ashamed to meet their own shareholders; probably they were afraid of the effect the discovery might have on public opinion. He would be able to prove to the jury, by the clearest and most indisputable evidence, that they determined to hush up the whole matter; and, whilst they put a stop to this undue abstraction of gas from their neighbours' mains, they determined to shroud the past in secrecy and silence; and, staggered by the amount of compensation they would have had to pay, to pay none at all. Instructions were given to Mr. Lumb, the engineer, and Mr. Chisholm, the chief superintendent of mains of defendants' company, to employ men to go round to the various places where they had discovered that the London gas pipes had been fixed to the wrong mains; and he (the Attorney-General) was told (and he could put Mr. Lumb into the box) that the cases amounted to something like a thousand; to stop up in secrecy and in darkness by night, or early in the morning before any one was stirring, to avoid observation; and, if they saw any of the other company's servants, to make an excuse—for this was the course pursued; to stop up the places on the plaintiffs' main where the defendants' services were wrongly attached, so as to prevent the discovery of what had taken place. Now, the consequence was, of course, from time to time settlements in the ordinary mode took place between plaintiffs' and defendants' company. It was not until the year 1852 that the plaintiffs became aware of the defendants' proceedings. Mr. Chisholm remained in the service of the defendants' company from 1848 to 1852. In the year 1852 he was discharged, and some difference arose between him and the directors, whose servant he was, and then the truth came out. He went, in the first instance, to a person of the name of Macrae, who was an officer of one of the other metropolitan gas companies, and informed him of the practices which had been carried on towards the Equitable Gas Company, and many others, as well as the Imperial Company. Mr. Macrae, in consequence, put himself in communication with the secretary of the plaintiffs' company, and Mr. Chisholm was seen on their behalf, and gave in a list of cases in which the service pipes of the London Gas Company had been connected to the plaintiffs' mains, with other information on the subject; the consequence of which was, that, on the 14th of July, 1852, the solicitors of the plaintiffs, Messrs. Wilde, Rees, Humphry, and Wilde, addressed a letter to the directors of the defendants' company, stating "that it had recently come to the knowledge of the plaintiffs that the London Company had for several years past been supplying their customers with gas from the mains of the Imperial Company; that they had ascertained conclusively that the quantity of gas so taken had been very great; and they enclosed a particular of twenty-seven cases, amounting to £2396. 5*s.*, demanding payment of the same." In reply to this, the plaintiffs' solicitors received a letter from Messrs. Crowder and Maynard, as solicitors for the London Gas Company, to which he prayed the most particular attention of the jury:—

"The directors of the London Gas Light Company have instructed us to acknowledge the receipt of your letter of the 14th inst. The subject to which it refers is entirely new to them, and we think you will feel that they cannot be expected to recognise a claim which they have reason to believe is the result of information given by a discharged servant, and under circumstances certainly not entitling him to much credit."

This statement was utterly untrue. He (the Attorney-General) knew that Messrs. Crowder and Maynard were too respectable men to place their names to a falsehood knowingly, and they were, no

doubt, misinstructed, and the letter must, therefore, be taken as the letter of their clients; but he repeated that the statement was utterly untrue, and not only that the London Company knew that in 1849 they stopped up the apertures that had been made in the plaintiffs' mains for the introduction of the services of the London Gas Company, but they were at that very time in communication with Chisholm, who had threatened them to communicate those facts to the plaintiffs unless they gave him a sum of money, and he would prove that they did give him a sum of money, that they got him out of the country, and that he is now in Australia. In order to prove these facts a bill of discovery had been filed against the defendants, for inasmuch as Mr. Hall, the chairman of the defendants' company, had found a sum of £650 to send Chisholm to Australia, he could not produce Chisholm, but he had copies of the correspondence that took place between Chisholm and the directors of the defendants' company. The plaintiffs, by their bill of discovery, had compelled the production of those documents. He had got them all, and he should show how Chisholm gradually began by threatening, but in a mild form; how his threats developed themselves into a positive and open menace; and how, at last, he received the sum of £600 to go to Australia, to get rid of him and two of his workmen, who had assisted him in stopping up the mains. The Attorney-General here read the correspondence, which commenced by a letter from Chisholm to Mr. Hinde, the secretary of the London Gas Company, dated April 27, 1852, in which he reminds them that his engagement was for seven years; that during the four years he had remained with them, he had been the means of saving them £112,140, and calling upon them to give him £600, accompanied by a document that whatever was bestowed upon him was done in consideration of his valuable services, and that he left their employment of his own accord, it being well known to Mr. Hinde that the most arduous and disagreeable, but yet most serviceable to the London Gas Company of all his duties, were performed by him personally, when every other officer of the company was in bed. The Attorney-General asked the jury what other construction they could place upon this letter, than that he had saved that enormous sum, which the London Gas Company would otherwise have had to pay to the other companies, whose gas it had been using to this immense extent, during, as he should show them, fourteen or fifteen years? No doubt the jury would suppose that the secretary's reply would have been in indignant terms, but what was the fact? He received the following answer on April 29, 1852:—

"Sir—Your several letters having been under the consideration of the board, their decision is to pay you three months' salary, from the date of your resignation. The directors are willing to take one of your pipe-drawing machines, of the most improved construction, at the sum of £50; and another, of a different size, at the same rate, should it be required."

The Attorney-General then read further correspondence, including letters from Mr. Hinde, the secretary; Mr. Hall, the governor; Mr. E. Hawkins, the deputy-governor of the London Company, to Mr. Chisholm, which (with the exception of one from Mr. Hinde, who, in his personal capacity, expressed his indignation at the conduct of Mr. Chisholm) were of a conciliatory character. On June 12, 1852, Mr. Hinde writes in his official capacity, as secretary, as follows, viz.:—

"I am instructed to state that, upon entering this company's service in March, 1848, as superintendent of mains and services, you produced favourable testimonials. These have been unfortunately mislaid, or they should have been returned to you. And I am further instructed to state that you have performed your several duties, while in the company's service, with zeal and ability, and resigned your appointment in the month of April last."

The Attorney-General then called the particular attention of the jury to the letter of Mr. Chisholm, in reply to the foregoing, addressed to Mr. Hall, the chairman, and directors of the London Company, dated June 13, wherein he says that he despises their testimonial; whether or not he conducted himself to their satisfaction, he knows he did to their interest; and unless they comply with his request he will undertake a situation which will disclose the iniquities of the London Gas Company. He added:—

"I trust, as you are at the head of the company, well knowing your personal orders to me, you will see justice done me."

After this letter Chisholm made his revelations to other gas companies, and no doubt, assuming that application would be made on behalf of those companies for restitution, he again writes, on June 29, to the directors of the London Gas Company, wherein he says:—

"I have no doubt by this you will be aware of the light I have thrown upon many subjects; but, if such light is not sufficient to warrant you to comply with my request, I can very readily, and without inconvenience to me, give you seven-tenths more."

What did the jury suppose this observation about the seven tenths meant? Why, that he had communicated only three-tenths of their misdeeds and of their liabilities, and had still seven-tenths in hand. Chisholm then proceeded:—

"If you are satisfied that I am not altogether a fool, by complying with the request I made in writing to you, and that you find I have done sufficient to warn you that I have been your faithful servant, by an acknowledgment to that effect, officially, I will at once hold my hand."

The jury would naturally suppose that such a letter, received by a board of gentlemen, would have met with contempt and indignation; but, instead of that, Mr. Hall, the chairman, instructs his solicitor to see this man and supply him with funds to emigrate to Australia, and he (the Attorney-General) would prove to the jury, from Mr. Hall's own answer to the plaintiffs' bill of discovery, that his solicitor did, from Mr. Hall's funds, pay this man 600 and odd pounds, and set him off to Australia with his family. How could the jury understand this conduct on the part of defendants, when they knew that Chisholm had at this time made his communication to the plaintiffs? They had, at this time, the letter of Messrs. Wilde and Co., asking for compensation, and they instructed Messrs. Crowder and Maynard to write a letter, stating that the subject is totally new to them, and that this information came from a man of the most polluted character, wholly unworthy of credit, and yet they gave him £650 to get him out of the way. These letters were all read at the board of the London Gas Company, and would now come before the jury in an authentic and undeniable shape. The Attorney-General then entered into detail as to the manner in which he would prove the cases of abstraction of gas, the information having been derived from inspection of the defendants' own books under a judge's order. The Attorney-General commented strongly on the conduct of the directors of the defendants' company, for not having honestly come forward and proclaimed their discoveries to the plaintiffs in 1849, instead of hushing the whole thing up, and taking every possible means to prevent the plaintiffs from discovering the wrong done to them; and who, but for this man Chisholm, would never have known it to that hour. Would the jury believe it possible that, under the circumstances of this case, the defendants would have put a plea of the Statute of Limitations upon the record, with a view of preventing the Imperial Gas Company from recovering from them the price of the gas which they admit to have been abstracted by them to the plaintiffs' wrong, to prevent the plaintiffs from recovering the price of that gas by which they (the defendants) had profited, and the proceeds of which they had put into their own pockets? They really had, he would almost say, the baseness to put a plea upon the record to prevent the plaintiffs from recovering for more than a period of six years.

A conversation ensued between the Lord Chief Baron and counsel as to the sum paid by defendants into court, it appearing that a second payment of £250, in addition to £400, had been recently paid in.

Sir F. THESIGER stated that he would take advantage of this pause of the Attorney-General to say that there was a cross action by the London Gas Company against the Imperial Gas Company, so that they had paid £600 into court.

LORD CHIEF BARON: No, £400.

Sir F. THESIGER wished to make a proposal to his learned friend, who had been speaking of a plea of the Statute of Limitations. His learned friend was aware that there was an offer on the part of the London Company to withdraw that plea, and refer the whole matter to arbitration.

The ATTORNEY-GENERAL said, that would take him into a very wide field of discussion, as the plaintiffs had as much matter to complain of in that part as in any other.

The LORD CHIEF BARON said: If they pleaded the statute merely for the purpose of having an inducement to offer to refer the cause, probably it was not open to the remark that there was any great dishonesty in it. His lordship then inquired whether the Attorney-General would accept the offer?

Sir F. THESIGER would suggest, before any final arrangement, that similar measures must be taken on the part of plaintiffs to test their mains as had been taken by the defendants.

The ATTORNEY-GENERAL said there was no difficulty in that, as his clients had not pleaded the statute; he must not have it supposed for a moment that there was or could be the slightest imputation on his clients of any concealment on their part.

The LORD CHIEF BARON did not understand that any imputation was made.

Sir F. THESIGER said, probably his learned friend and his lordship would, for the sake of all the directors of the defendants' company, with the exception of Mr. Hall, permit him to state that in their answer they positively swore they had not the slightest notion, and were no parties whatever to the sending Chisholm away; it was done by Mr. Hall himself, a most imprudent thing; and he (Sir F. Thesiger) could not think how it could have been done.

The ATTORNEY-GENERAL could not exonerate the directors from knowing, in 1849, that Mr. Chisholm was stopping up the mains, and that they were not paying.

Sir F. THESIGER said it was perfectly true, but they did not know at that time that it was not the usual course of all companies.

The ATTORNEY-GENERAL: Then they ought to have known it. He was bound to say, on the part of his company, that they had sent defendants in accounts from time to time, and had always paid; and it was on their own account that defendants now brought the action against his clients—not on their own discoveries, but on his clients' accounts.

A conference between the counsel on either side here took place as to a reference, the only point of difference being whether the costs of the plaintiffs' bill of discovery should be in the discretion of the arbitrator—a point which the Attorney-General insisted upon on the ground that, if the defendants had made the disclosures they ought to have done, they would not have wanted a bill of discovery; and, if Chisholm had not been sent out of the country, they would not have wanted it.

This point having been conceded, the LORD CHIEF BARON addressed the jury; telling them that they would find a verdict for the plaintiff, subject to a reference.

Sir F. THESIGER said, there was no doubt whatever but all the costs in the discretion of the arbitrator meant the costs of the bill of discovery, and that his lordship would certify in both cases for a special jury; to which the Lord Chief Baron assented.

Verdict for plaintiffs, subject to a reference as to the amount.

BAIL COURT—APRIL 28, 1854.

(*Sittings at Nisi Prius, before Mr. Justice* COLERIDGE.)

STOKES *v.* THE RATCLIFFE GAS LIGHT AND COKE COMPANY.

Mr. BRAMWELL and Mr. LUSH were counsel for the plaintiff, and the ATTORNEY-GENERAL and Mr. BROWNE for the defendants.

This was an action to recover penalties under the act of Parliament by which the defendants were incorporated.

It appeared that the company was incorporated by act of Parliament in 1823 for supplying certain places at the east end of London with gas; but by the act certain limits were provided within which alone

the defendants could supply gas, and it was provided that, if they supplied any person with gas without those particular limits they should pay a penalty of 5s. per cubic foot of gas, and if they lighted any lamp without the limits they should pay 20s. per lamp per hour. The defendants had, however, supplied the Thames Tunnel lamps with gas, and also the entrances to the Tunnel, and the inhabitants of Tunnel-square, on the south side of the Thames. The plaintiff therefore contended that all this supply was without the limits authorised by the act of Parliament, and that the defendants had incurred penalties to an enormous amount, but by this action he only sought to recover £10,000. The question was one of great importance, because if the defendants were authorised in these acts they might supply the whole of the Surrey side of the Thames with gas.

As the question was one of such importance, it was at first arranged to take the facts of the case, and then to turn the whole matter into a special case for the opinion of the court above.

It was then proved that the Thames Tunnel had been lighted in the Middlesex half by the defendants, and the Surrey half by the Phœnix Company. Upon the Phœnix Company retiring from the district in October last, the Tunnel Company lighted the whole of the Tunnel, and their house on the Surrey side of the river, by gas supplied by the defendants. They did so for twenty-four hours without notice to the defendants, but after that time a communication was made to the defendants, who had continued ever since to supply the Tunnel Company, and had been paid for the additional quantity of gas. The plaintiff was a distiller near Snow-hill.

At the conclusion of the plaintiff's case, in consequence of some dispute about the law,

The Attorney-General addressed the jury for the defendants, commenting upon the fact of the plaintiff being a common informer, having no interest whatever in the matter except endeavouring to put money into his pocket at the expense of the company. He then urged upon the jury that they must have the case made out clearly and satisfactorily before they could give the plaintiff a verdict, and he contended that it was not proved that the company knew the gas was going to be consumed in Surrey. They must not act upon surmise, but upon strict proof.

The Learned Judge said that, in point of law, he considered that the act of Parliament had been infringed upon; that this was a supply without the limits of the act of Parliament. If the jury thought it had been proved that the defendants had knowingly supplied the gas, then the plaintiff would be entitled to a verdict, and he had consented to take £1000.

The jury consulted together for some time, and then returned a verdict for the plaintiff, with 40s. damages.

The Judge said that was hardly a legal verdict.

The Jury said they did not see that any one had been damaged.

The Judge said that was not necessary. The act of Parliament had declared that this was an offence, and that any person might sue for the penalty.

The Jury: The Thames Tunnel was not built at that time, and it must be lighted.

The Judge said they had nothing to do with that. However, it was for the jury to give a verdict, and if they would not give more than 40s. he could not help it.

The Attorney-General then tendered a bill of exceptions to the ruling of the judge.*

Miscellaneous News.

REPORT OF DR. LETHEBY

To the Commissioners for Paving, Lighting, &c., the Parish of St. James, Westminster, upon the Supply of Gas to the Parish by the Western Gas Company.

London Hospital, June 19, 1854.

Gentlemen,—I have the honour to communicate my report on the illuminating power and chemical quality of the gas supplied to the parish over which you have jurisdiction; and, before I present you with the results of my investigations, it is proper that I should state that my inquiries have been made chiefly with the view of ascertaining what is the average amount of light furnished by each of the public lamps.

My experiments were made at the office of the commission in Marshall-street, and the burners were supplied to me by Mr. York, who took the necessary precautions to obtain fair samples of the burners actually made use of in the lamps of the parish. In all, I tested the power of twenty-nine burners: of these, fourteen were new; and I am informed that they were taken indiscriminately out of the general stock from which the lamps are furnished; the others were obtained from the lamps themselves. Of the latter, eleven were marked No. 2, and four No. 3. In addition to these, I employed an argand burner of 15 holes, with a seven-inch chimney, and a Leslie of ordinary quality. The candle was a sperm candle of six to the pound, burning at the rate of from 136 to 140 grains per hour, and calculated into the standard consumption of 120 grains per hour.

The following are the results obtained:—

The *pressure* of the gas ranged between one inch and a tenth, and nine-tenths; the average being an inch.

The *illuminating power*, as estimated in sperm candles of standard value, was found to be as follows:—

Kind of Burner.	Hourly Consumption.	Greatest Light.	Least Light.	Averag Light.
Argand	4 cubic feet	17·5 candles	15·2 cand.	16·4 cand.
Leslie	3 „	11·0 „	10·5 „	10·7 „
No. 2 (new).	2 „	8·5 „	5·8 „	7·1 „
„ (street)	2·4 „	10·8 „	7·0 „	9·5 „
No. 3 (new).	2·5 „	9·9 „	6·6 „	8·2 „
„ (street)	3·1 „	12·9 „	9·3 „	11·7 „
No. 4 (new).	3·4 „	14·5 „	13·0 „	13·8 „

From this table it is evident that the general quality of the gas, as regards its illuminating power, is highly satisfactory; and, secondly, that the No. 2 burner, which appears to constitute about 73 per cent. of those furnished to the street lamps, gives, when new, a light equal to that of 7 sperm candles, and when old, a light of about 9½. The remainder, namely, the 27 per cent. of No. 3 burners, furnish, when new, the light of 8 candles, and when old, the light of 11¾.

The *chemical quality* of the gas was found to be exceedingly good; for, by condensation with bromine, it showed an average composition of 12 per cent. (by volume) of rich condensable hydro-carbon. One hundred cubic feet of the gas gave but one-tenth of a grain of ammonia, and yielded, by combustion, only seven grains of anhydrous sulphuric acid; besides which, the gas was found to be perfectly free from sulphuretted hydrogen and carbonic acid.

My conclusions, therefore, are that the chemical quality and illuminating power of the gas supplied to the street lamps of your parish are unusually good, and that, if the No. 3 burner were invariably used, the average light of each lamp would be equal to that of 11 or 12 candles; as it is, however, the light is usually not greater than that of 9 or 10 candles.

I have the honour to remain, your obedient servant,

Hy. Letheby, M.B.,

Professor of Chemistry and Toxicology in the London Hospital, and Chemical Referee to the Corporation of London.

THE SURREY CONSUMERS' GAS ASSOCIATION AND ITS CUSTOMERS.—MEETING OF CONSUMERS.

An adjourned meeting of the Consumers supplied by the Surrey Association was held on Tuesday evening, the 4th instant, in the Temperance-hall, Fair-street, Tooley-street, Borough, for the purpose of receiving a report of the proceedings which had taken place between the committee of the Surrey Gas Consumers' Protection Society and the board of directors of the Surrey Consumers' Gas Association. There were upwards of 300 persons present.

Mr. George Shand was called to the chair. He stated that the first meeting of the consumers was held a short time ago at the Leather-market Tavern, in consequence of the very general complaints that had been made of the singular increase in the amount of gas which, according to the registration of the company's meters, appeared to have been consumed by them, over that which they had used in corresponding quarters of former years, when burning under the old companies, and using, in many cases, more lights, and burning them a longer time. A very strong expression of feeling was evinced at that meeting as to the injustice with which the consumers were treated by the gas association; and a committee of about seventy gentlemen was appointed to agitate the question, and to communicate with the directors of the gas company, with a view of obtaining some redress for the grievances of which the consumers so loudly and so justly complained. (Cheers.) This meeting had been convened, therefore, in order that the consumers might receive a report of what had been done by that committee, and also that an opportunity should be given to all parties to hear both sides of the question, and to judge impartially upon the facts which would be adduced. As Englishmen they felt that the only honest way of doing anything was to do it in a straightforward manner and before the eye of the public—(cheers)—and this was a public meeting, open to all, and they challenged discussion. (Cheers.) He hoped, therefore, that if any one should be inclined to attempt to rebut the charges which might be made against the Surrey Gas Association, he should be listened to fairly and impartially; and he (the chairman) trusted that the meeting would support him in maintaining order. (Applause.) The chairman then called upon

Mr. James Haxell, the honorary secretary, who said that it was his duty to furnish the meeting with a succinct account of all that had occurred since their adjournment. They would remember that the adjournment was only for a week, and an arrangement was made that a deputation from the committee should be received by the directors, in order that their complaints might be stated, and, if possible, explained or redressed. Before, however, the day appointed for the reception of that deputation, the committee received the following letter from the directors of the Surrey Consumers' Gas Association:—

"*Surrey Consumers' Gas Light and Coke Association, Offices*, 201, *High-street, Borough, May* 29, 1854.

"Sir,—The directors of this association, with the view of giving the utmost satisfaction to their consumers, have appointed Mr. George Rait specially to inquire into every case where complaint of overcharge has been made. That gentleman has commenced his duties; but the directors are given to understand at their meeting to-day, that it will be impossible for him to report upon those cases under examination, and upon others yet to be inquired into, until the expiration of four or five days. Under these circumstances, as the time of the deputation would be taken up to-morrow merely to receive this information, I would suggest to your committee the propriety of postponing their interview with the board of directors until the following Tuesday, June 6, at the same hour, when it is expected that the official meter-tester will be enabled also to report his decision upon the meters in some of the cases under dispute.

"I am, sir, your most obedient servant,

"Wm. P. Boddy, Secretary.

"Mr. James Haxell."

Upon receiving this letter, the committee met, and resolved that the

* A second action has been brought by the plaintiff against the defendants in this cause, which was set down for trial in the Court of Queen's Bench at Westminster on the 28th ult., but deferred to the next sittings in consequence of the time taken up by the cause of Young v. White. It was currently reported that these actions have been commenced at the instigation of parties connected with the Surrey Consumers' Gas Company, with the view of compelling the Tunnel Company to take their supply of gas from that company.

adjourned meeting should be postponed until further notice, and handbills announcing the postponement were distributed throughout the district. On June 6 the deputation waited upon the directors at the offices of the association, and the secretary stated to the chairman of the directors (Mr. Pocock) that it was the intention of the deputation to state general cases of complaint, leaving it for the directors to suggest a remedy. Several cases were accordingly stated; some were denied, and an inquiry was promised in others. A member of the deputation then expressed his doubt as to the accuracy of the meters, when he was replied to by a gentleman who stated that he was the manufacturer of the gas at the works at Rotherhithe, and that the gas supplied was of the highest quality. The directors then objected that the complaints had not been put forward in a more definite form, and urged that they should be presented in writing. The committee having drawn out a scheme of their complaints and suggestions, gave the following document to the directors:—

"The Committee of the Surrey Gas Consumers' Protection Society, representing the great body of the consumers in the district supplied by the Surrey Gas Consumers' Association, beg respectfully to submit to the board of directors the following propositions. From the courtesy with which the deputation from the committee were received by the board of directors on a former occasion, such propositions are now submitted to the board, more in the shape of suggestions than demands, although they feel strongly that the large and general increase in the charges made by the officers of the association would justly entitle the consumers to take the stronger position; and the committee sincerely hope that the directors, in the exercise of their discretion, will readily accede to the wishes of the consumers, and thereby restore that good understanding which should ever exist between a public company and the public generally.

"1. A return to the system of cards—(cheers)—to be left with each consumer, which, properly arranged, will indicate the supply, and, by comparison with the consumption of former quarters, act as an immediate check upon any irregularities in the meter itself.

"2. That any consumer shall be at liberty to use either a wet or dry meter, and in the event of the company's meters not being considered satisfactory, such consumer may use any meter to be supplied by a respectable private gas fitter. (Cheers.)

"3. That the company shall not refuse to supply gas to any consumer by reason or in consequence of gas rent due by a previous occupier, except in cases of fraudulent connivance on the part of an incoming tenant.

"4. That the chemical referee to be nominated to test the quality of the gas under the powers of the bill now before the House of Lords, be appointed forthwith, and enter upon his duties immediately; and, in order to clear up the impression generally entertained that the gas is of a lower quality when consumed than when manufactured on the premises of the company, that such chemical referee, when required by a consumer of not less than 50,000 feet per annum, shall test and report upon samples of gas as drawn from the supply pipes of such consumer. (Cheers.)

"5. The recent arrangements made by the three companies supplying gas to the district, whereby the consumers have been wholly deprived of the advantages of competition, or, more properly speaking, whereby a complete monopoly has been created, in lieu of that free trade in gas which the consumers of gas were led to believe, by the founders of the Surrey Gas Consumers' Association, would tend so greatly to the advantage of the public, compels the committee of this society to point out most forcibly to the directors the immense increase of charges made, since the amalgamation of the companies, for gas supplied during the past Lady-day quarter. In calling the attention of the directors to this ground of complaint, the committee are fully aware of the difficulties attending the question. On the one hand, they cannot but be of opinion that the immense general increase of consumption, as indicated by the company's meters, must be erroneous; on the other hand, they cannot avoid seeing that the officers of the company will agree that the register of consumption, as indicated by the meters, is a just ground for making such charges. The committee also hesitate in requiring a per centage to be allowed off the Lady-day quarter, insomuch that such allowance, if made, must be general; and, if calculated upon an average of former quarters, would in many instances (where the fittings have been changed, and greater quantities of gas consumed) be unfair upon the company. It is a matter, therefore, which has demanded and received their most anxious and most serious consideration; and, in making the following very moderate proposition, they feel that the directors will readily admit that the committee have only been actuated by a sincere desire to see justice done between the consumers and the company. The committee therefore propose—That, when any consumer feels aggrieved at the amount of charge made for gas consumed during the Lady-day quarter, such consumer, upon giving satisfactory evidence that no alteration has taken place in the fittings or hours of consumption, shall have the increased charge made to him by the company reduced to an average of former corresponding quarters; and, insomuch that in many instances the consumers are personally made to make the explanations which will be required by the officers of the company, any member or members of this society, nominated by such consumer, may attend on his behalf at such investigation. The committee of this society, whilst fully seeing the difficulties that will arise in many instances, and the impossibility of giving complete satisfaction in every case, yet they cannot doubt but that the officers of the company will be instructed by the directors to meet any disputed case in a liberal spirit, and thereby restore that harmony and good feeling which should ever exist between the manufacturers of gas and the consumers thereof, and which the committee are certain is equally the interest of the company, as well as the disposition of the board of directors."

These propositions were left with the directors on June 6, and on June 9 the committee received the following answer from Mr. Boddy, the secretary of the company:—

"I am instructed by the board of directors of this company to acknowledge the receipt of a memorial dated the 7th inst., and signed by you, on behalf of a committee of consumers, and to inform you, in answer thereto, that the directors have taken every means to secure the rights and protect the interests of the public consumers. The board have been, and still are, most anxious to do perfect justice to all their consumers—(Oh!)—any one of whom, having a just cause of complaint, and will make his complaint known to the company, the same will immediately be inquired into, and justly dealt with. (Ironical cheers.) Those cases of complaint already made known to the board have been referred to the public officer to certify the correctness of the meters, when the respective parties complaining will be called upon for the payment of such certified correct account. So far as the investigation has proceeded, the board has no doubt of the satisfactory settlement of all questions in dispute. The directors are not a little astonished to find that the consumption of gas by several members of your committee (who have privately and publicly talked so much of 'enormous overcharges,' &c. &c.) is actually less than the corresponding half-year from the old companies, a few samples of which I subjoin on the other side. The directors feel that such conduct requires no comment from them. You will, therefore, not be surprised when I inform you that the board must decline the intervention of such or any committee to settle questions of account between the company and its respective consumers."

On the other side the letter referred to six gentlemen who had taken a leading part in this committee; and though, perhaps, it was invidious for the company to single out a few individuals where the complaint was so universal, and where their number was not limited to six, but their name was "Legion"—(hear, hear)—yet he should read the figures furnished by the company, as he understood that each gentleman would take an opportunity of disproving the allegation that there was any real or actual diminution in the amount of gas charged to them this quarter as compared with the corresponding quarter of former years. The following were the names, and the difference in consumption between the old companies and the new, as furnished by the new company:—Mr. Hayden, of Bermondsey-street, 3600 cubic feet less than under the old companies; Mr. Battersby, of Dockhead, 2600 cubic feet less; Mr. Fairey, of Tooley-street, only 1600 cubic feet *more;* Mr. James, grocer, Bermondsey-street, 2800 cubic feet less; Mr. Sadler, Tooley-street, 8500 cubic feet less; and Mr. Hellier, butcher, Dockhead, 3500 cubic feet less. Now, these gentlemen, he (Mr. Haxell) believed, were all present, and ready to explain how it was that, notwithstanding these figures, they yet conceived there was an excess in the charge for gas over what they had paid in former years, under the old companies. (Hear, hear.) The letter from the directors, which he had read, was received on June 9, and the next meeting of the committee took place on the 14th inst. There was some difference of opinion among the members of the committee as to the course which should be pursued; but ultimately it was agreed, by a vote of the majority, that confidence should be placed in the promise of the directors, that every case should be inquired into; and the committee fondly indulged the hope that this promise would be faithfully fulfilled, and that it would not be necessary for them to call another public meeting, or in any way to continue an agitation which was certainly always unpleasant and inconvenient to men of business. However, the committee were disappointed. Numberless complaints continued to pour in from gentlemen who had been overcharged, and who, on resisting the company's exorbitant demand, had been treated in rather an arbitrary manner—their gas having been at once cut off—(Shame!)—to the serious detriment of their business. He (Mr. Haxell) was sure that the last thing in the world that the tradesmen of the Borough could hesitate to do would be to pay a fair and honest charge—(hear, hear)—but the consumers found a great difficulty in complying with these serious demands, because they had no means of ascertaining their correctness, but, on the contrary, on comparing them with the charges made by the old companies in corresponding periods of former years, they found that there was a very great and inexplicable increase. (Hear, hear.) Unfortunately it was too clear that the public must be completely at the mercy of a gas company and a water company, where a monopoly existed; and, under present circumstances, a supply of gas was as necessary as a supply of sunshine, and a tradesman could not sustain the loss which he would incur from having that supply stopped. A consumer in Upper Tooley-street—always very punctual in the payment of his gas bills—demurred to the account furnished him for the Lady-day quarter, in consequence of its excess over what he had paid for previous quarters, and he requested the company to inquire into the matter, with a view of rectifying the charge. The remedy they afforded him was to remove his meter—(Shame!)—and it being absolutely impossible, from the consumer's business, that he could do without gas, the result was that he went the next day and paid the bill, and the meter was replaced, and there it now stood, in that consumer's eyes, as the medium by which a most unjust charge was extorted from him by this company. (Loud cries of "Shame!" and groans.) Many other similar cases were brought before the committee, and it was felt, therefore, that no other resource was left but to trouble the public to attend to what was, after all, their own business, and impose upon them the inconvenience of another meeting. This was, then, how the matter stood, as far as the committee were concerned. They felt that they could not avoid calling this meeting when they looked at the daily increase in the number of complaints made by the consumers against the company, and the vexatious and tyrannical manner in which the company had acted towards those who had resisted these unfair claims. He believed that, whatever might be thought of the steps which the committee had, in their discretion, considered it advisable to take, the gentlemen who composed it were, at least, above all suspicion. (Cheers.) They had had no personal motive to serve, and no person on it, or acting with it, had, either directly or indirectly, received one farthing for his services. The fundamental position upon which they started, in establishing the Surrey Gas Consumers' Protection Society, was that, inasmuch as they, being themselves consumers, were engaged in the promotion of the common and general good of the body, it would scarcely become them, and would be detrimental to their cause, if they levied any pecuniary contributions for the furtherance of the object they had in view. Suspicion would have been excited, and the committee would have been called a parcel of guinea-hunters. Once money was introduced, there was always a great difficulty in trusting those who had the disbursement of it; and therefore he thought it would be better, before he sat down, to put the meeting in possession of the exact state of the society's financial affairs. The whole amount received up to the present time by the committee was £6. 7s., and the expenditure for the hire of rooms, the printing of bills, and the services of the bill-sticker, amounted to £8. 2s. 6d.; so that this high-spirited public body, the Surrey Gas Consumers' Protection Society, had unfortunately expended a sum of £1. 15s. 6d. more than they had

absolutely received. (Laughter.) He did not apprehend, however, that those who had been fighting the consumers' battle would be left in the lurch for even a much larger sum than that. (Cheers.) He thought it right to mention these matters, because some might be narrow-minded enough to suggest—though he had not heard it insinuated—that the committee had been well paid for their disinterestedness; and in justice to the committee, who had given their services gratuitously, it was right to avoid such a miserable imputation, which was too often made in cases like this. It now only remained for him to resign into their hands the office he had held as hononary secretary to their society. He could not help feeling that the labours of the society are very nearly at an end. It rested now with the body of consumers at large to continue this agitation, if they were still determined to resist the company. Before he resumed his seat, he would read a letter which Mr. Hayden had received from Mr. T. G. Barlow, a very enlightened gentleman, who had taken a leading and very active part in gas matters, and was a very high authority on all matters connected with the gas question. Mr. Haxell then read the following letter:—

"32, *Bucklersbury, July* 4, 1854.

"Sir,—I fear I shall not be able to avail myself of the invitation you send me to attend the public meeting, about to be held this evening, of parties who feel themselves aggrieved by the arbitrary and tyrannical conduct of the Surrey Gas Consumers' Company and its agents. You have, unfortunately allowed the proper opportunity to pass by for obtaining the redress of your grievances by petitions to the Houses of Parliament against their bill; and your only remedy now is to start an independent company of *bonâ fide* consumers, and be prepared to apply to Parliament next year for an act of incorporation. The so-called Surrey Consumers' Gas Company is now become a body of hungry speculators—(loud cheers and laughter)—eager after profit, and ready to victimise the public, in defiance of all their pledges, by entering into a combination, the effect of which is to compel the consumer to pay them the highest price for an inferior article. (Loud and prolonged cheering.) We on this side of the Thames have had some experience of the unscrupulous manner in which these parties have incited the public to aid them in getting a footing; and, having got it, how they have thrown them overboard, just as they have done in Surrey. If, however, you can raise a capital of £50,000 amongst the consumers to start a cannel coal gas company with, you may all save 50 per cent. upon your gas accounts, and get a fair interest for your money. I shall be happy to give you my assistance in such an attempt; and am, sir, your obedient servant,

"THOMAS G. BARLOW.

"Mr. B. Hayden, 51, Bermondsey-street."

He (Mr. Haxell) could not help feeling that a very great deal of difficulty would be experienced in getting together anything like £50,000, unless they could find 50 spirited gentlemen with £1000 each. [A CONSUMER: I don't think you'll have much difficulty. Don't throw cold water upon it.] He would be very sorry to throw cold water upon such a project, but still they must not disguise the difficulty of carrying it out. However, the whole matter now rested in the hands of the consumers themselves, and with co-operation and energy they could accomplish anything. (Cheers.)

Mr. HAYDEN said that he was the first person named in the list given by the directors, of those consumers who were on the committee, and who were represented not to have any ground for complaint; but, on the contrary, cause for gratification in the diminution of the amount charged to them as compared with the charge made by the old companies for corresponding periods. He admitted that his gas was 3800 feet less this year, but then it ought to have been 10,000 feet less. Last winter he never thought of closing his shop until half-past ten or eleven at night; while this winter he had closed at nine, or half-past nine. Moreover, one light had never been burned for the last ten months, and the other nine had been burned at least an hour and a half less every day; and yet, because he was charged for 3800 feet less, it was asserted that he had no cause for complaint. Now, he had a meter in the kitchen, and the charge for this, under the old company, in the long winter quarter was only 7s. 7d., but the new company charged him 11s. 9d. for the same light, in the short winter quarter, viz., the Lady-day quarter. Had he no cause of complaint, then? He considered that the charges were most excessive—(cheers)—and he did n't believe their figures at all. One of the company's officers came one morning and took away his meter, and put up a new one, and he was obliged to take their word about the registration of the former one. A friend of his, whose meter was taken away, was more cautious. Before it was removed he copied the registration, but said nothing about it. When the company sent in their account, he found that they charged him for 3400 more cubic feet than had been actually registered, and when he told them of this discrepancy, they said—"Oh, it 's a mistake of our clerk. We 'll allow you that, now you have found it out." (Laughter.) But would they have allowed it if he had not found it out? (Cheers and laughter.) The same thing occurred with another consumer, who, they admitted, had been, by a clerical error, overcharged for 18,000 cubic feet more than he had consumed; and he believed that it was the same in his own case, only that he had not taken the precaution of copying the index of the old meter which the company had removed. (Hear.)

Mr. FAIREY said his name had been mentioned among the six; and as Mr. George Rait, the Surrey Consumers' Gas Company's tip-top man—(laughter)—had gone upon figures, he (Mr. Fairey) was glad to be able to produce figures too. But before he commenced—as these six had been challenged by the company, and as the company had been officially invited to attend this meeting—he thought it was only fair play, before he opened his mouth, that he should know whether the company was, or was not, represented at this meeting. He should feel obliged if the chairman would put that question.

The CHAIRMAN: The question that Mr. Fairey asks is—Are there present any of the directors or of the trustees of the Surrey Consumers' Gas Association, as they have been invited to attend? [A VOICE: The gas-maker is here.] He is not a director or a trustee. As I have not received any answer, I conclude that none of those gentlemen have accepted our invitation.

Mr. FAIREY: Then they are beginning to show the white feather. (Laughter.) The fact was, it was all a bottle of smoke; but when they got the steam up, they might be found rather warm. Six gentlemen had been selected out of about seventy that formed the committee, and these six, the directors alleged, had no cause to halloo, because their toes had not been trodden upon so much as others. Now, two months before this agitation commenced he wrote to the directors, requesting an examination of his meter, because he suspected that it was incorrect; so that at least he had had some cause for complaint. However, Mr. Rait, with all his calculation, had contrived to show that his (Mr. Fairey's) consumption was rather more than it used to be; and yet he could prove that he now consumed a great deal less gas. His gas bill from the new company for the last winter's quarter was £3. 9s. 9d.; his bill for the previous winter's quarter was only £2. 16s. 5d., or an increase of the last winter's quarter over the preceding one equal to about 30 per cent. Now, he found that his bill for the corresponding quarter from the old company (when he burnt more gas) was only £2. 9s. 2d.; and yet they wanted to persuade him that he was now charged for less gas than he used to be. (Laughter.) However, Mr. Rait could not persuade him that black was white, and he could not believe that gentleman's figures. Now, when these companies projected this amalgamation, a petition was drawn up against it, and numerously signed; whereupon the "trustees" issued an address to the consumers, teeming with the "milk of human kindness"; and, as it was so short, he would read it. It was in the following terms:—

"The Surrey Consumers' Gas Light and Coke Association having applied to Parliament for a bill to incorporate the company, we felt it our duty to see that proper provisions were made to protect your interests. The act contains clauses to the following effect:—That the quality of the gas from an argand burner having 15 holes and a 7-inch chimney, and consuming 5 cubic feet per hour, shall be equal in intensity to the light produced by not less than 12 wax candles of six in the pound, burning 120 grains per hour. That all trustees, vestries, commissioners, and public boards, may appoint a practical chemist, or other competent person, to test the quality of the gas, and that the company shall render every facility to such chemists for testing the gas. Also, that it shall be lawful for the trustees of the consumers to appoint, at the expense of the company, a chemical referee to test the quality of the gas, and a person to test the accuracy of the meters. Also, a clause imposing penalties in case the gas shall be below the standard. This act also confirms the deed between the several gas companies and the trustees, by which the companies are bound to reduce the price of gas to 4s. per 1000 so soon as the prices of coal, labour, and iron are reduced to the prices of 1852. We have the satisfaction of informing you that Mr. Warrington, of the Apothecaries'-hall, has been appointed chemical referee, and that Mr. Mills, gas engineer, has been appointed to test the meters. Arrangements are being made, and both these officers will immediately commence their operations in the works of the company in Rotherhithe-street, where all complaints may be in future addressed; and we shall be glad to receive any communications should they not be properly attended to. We also desire particularly to draw your attention to the fact that the company has undertaken to supply meters gratis; but, nevertheless, every consumer has the right to purchase and use any other meter he may prefer. In conclusion, we feel confident that our efforts to secure the interests of the consumers will prove satisfactory to them."

He should like to know when all this was going to be done? (Hear.) Who made him a customer of the Surrey Consumers' Gas Company? He did not make himself their customer; but he was obliged to take his gas from them, and now, it appeared, they could do just as they liked with him, and he had no remedy. Bonaparte had described the English to be a nation of shopkeepers, but they would not look very fine shopkeepers if their gas were cut off. (Laughter.)

Mr. SADLER, another of the six (whose consumption had diminished by 8500 cubic feet), denied that he had ever complained of an excessive charge for consumption, in his own individual case, but said that what he had found fault with was the badness of the light. He considered that he ought to have a good light, but he got a bad one. (Hear, hear.) Now, what he said was this, if he paid for what he had, he ought to have what he paid for. (Laud laughter.) Now, he would mention a case in the parish of Bermondsey, where one of Stephens and Son's meters was used, and there had not been any variation in the number of burners or in the time that they were used. The number of burners used was 11. The consumption was charged as follows:—

Quarter ending March 16, 1852—83 days	37,600	cubic feet.
" " 21, 1853—72 "	34,900	"
" " 21, 1854—92 "	58,400	"

Think of that! From 34,900 to 58,400—or 27 per cent. increase. Now he would take the June quarters:—

Quarter ending June 24, 1852—100 days	27,500	cubic feet.
" " 23, 1853— 94 "	29,300	"
" " 23, 1854— 95 "	45,900	"

From 27,500 to 45,900—or an increase of only 18,400 cubic feet, without the slightest variation in the lights at the time. (Shame.) Well, now, if they could get these grievances remedied by solicitation, so much the better. They were all ready enough to pay a fair and reasonable price, but they could not submit to such extortion as that. (Cheers.)

Mr. BATTERSBY said that he was one of the six, and he, certainly, had very great cause of complaint. He could not tell them how many thousand feet he had been overcharged, but this he could tell them—that they had charged him about the same amount for gas during the last quarter as they did when he burnt it an hour and a half longer every night. A friend of his found, on examining his receipts from the Phœnix, that the utmost three quarters' gas had ever amounted to was only £1. 2s., but now he was charged by the new company £1. 9s. 9d. for only two quarters, and yet he did not consume any more gas, How was that? Another consumer, a friend of his, had

been charged £1. 12s. for a quarter's gas, while, when he was supplied by the old company, it never exceeded 12s. or 13s. Another consumer was charged £3. 6s. for 16,500 cubic feet, from Nov. 18 to Dec. 10, and then the next bill was for 42,400 cubic feet, from Dec. 10 to April 3—£9. 11s. (Oh, oh.) Yet he had positively consumed much less gas in the latter period than he had done in the former. Another case he was acquainted with was at Dockhead. A gentleman had a warehouse light, but during the last quarter it had not been used at all; nevertheless, the company charged him 11s. 9d. for the gas it consumed. (Laughter.) This was done, he believed, on the "averaging" principle.

Mr. JAMES said that his consumption had certainly decreased by 2800 cubic feet, as stated in the list; but, as he had since joined in the early-closing movement, he now closed an hour earlier, and sometimes burnt four or five lights less; and these two circumstances, he considered, ought to have made the diminution much more considerable. The landlady of a public-house in Fair-street paid the old company £5. 14s. for six months' gas, and now the new company, which pretended to be the consumer's friend, had sent her in a bill for £11. 3s. 6d. for the same period, though she had burnt fewer lights.

Mr. GROVE said, after what he had heard, he thought his own complaint rather insignificant. (Laughter.) The amount of gas charged to him by the Phœnix Gas Company, from September to December, 1852, was 16,900 cubic feet; the amount he was charged for the corresponding period of 1853 by the Surrey Consumers' Company was 22,600 feet. The amount charged to him by the Phœnix for the quarter ending March 31, 1853, was 16,800 cubic feet; for the corresponding period of 1854 the Surrey Company represented that the amount of gas he consumed was 22,100. Here was an overcharge of 11,000 feet, or more than £2.

Mr. TEMPERLEY, of Staunton's Coal-wharf, said that when this agitation commenced he refused to co-operate because he had, at the time, no reason to be dissatisfied with the Surrey Consumers' Gas Company, as they had charged him less than he had formerly paid the Phœnix Company. But on the Lady-day quarter he was rather astonished at receiving a bill for £35. 10s. 3d. for one quarter's gas. Now, he never paid the Phœnix Gas Company more than £16 for a winter quarter. On looking at his accounts, he found that he paid only £10. 14s. 3d. for Lady-day quarter, 1853, and £14 for the same quarter in 1852; and now the Surrey Company claimed £35. 10s. 3d. He had protested against the charge, and Mr. Rait then called upon him, and told him that they had averaged the old meter belonging to the Phœnix Gas Company, and had set it down at something that they thought he (Mr. Temperley) ought to have burned. At last Mr. Rait came to the determination of reducing the average, but he said he could not make any alteration in the registered quantity, because he could not acknowledge that their meter was wrong. He said that the consumers who had been using the Phœnix meters had not been paying for the full amount of gas they had burned, as not a single one of the Phœnix meters was right. He then proposed to reduce the bill by £9, but this did not satisfy him (Mr. Temperley), and he refused to pay the claim. He had been charged more than double the amount he was accustomed to pay, and he was determined to resist the demand until he and his fellow-consumers were satisfied. (Cheers.)

Mrs. DALE, of the Blue Anchor-road, here came forward to the platform, and stated, through Mr. Haxell, the secretary, that she had paid one of the Surrey Company's collectors £1. 18s. 10d. on account of gas, but that it had only been acknowledged, in the next claim, as 18s. 10d. This, Mr. Haxell said, was an error which might have been occasioned either by the misrepresentation of the collector or a mistake of a clerk in transcribing the account. Mrs. Dale next complained that the South Metropolitan and the Surrey Consumers' Company had both sent in their claims—the former for 19s. 7d., and the latter for £1—for the same quarter, and, as she had an objection to pay two parties for the same thing, her gas was at once cut off. (Loud cries of "Shame!")

WILLIAM KEMPLEY, a working man, said that he had the gas laid on in his house, because he understood that he could get a light as good as two candles for 1¼d. a night, which would be much cheaper than buying candles when they were at 8d. a pound. It cost him 4s. the first quarter, but, with the same meter and the same number of lights, he paid for the corresponding quarter of this year the sum of 17s. 7d., though five weeks of that time he was in Rotterdam, and his wife confined to a sick-bed, so that only one light was used. Now, they had sent him in a bill for £1. 9s. for the last quarter, while in the corresponding quarter of last year the charge was only 6s. So that was what he saved by using gas. They had got 10s. out of his wife, he was sorry to say, but he had refused to pay them any more. They had accordingly cut off his gas, and had threatened to seize his furniture, but he should only like to see them try it on! (Laughter.) He understood that the company was not incorporated, and, therefore, could not sue; but at any rate he should not pay them. (Cheers and laughter.)

A VOICE: It is incorporated. (Shouts of "No!") It was incorporated this very day. (Groans, and some laughter.)

Mr. G. ANDERSON, manager of the Surrey Consumers' Gas Works, here advanced to the platform, and obtained the permission of the chairman to address the meeting. He said: I have attended here, not from invitation, but from curiosity, to hear the complaints of the consumers against the Surrey Gas Company. I am the person who has manufactured the gas of which you have complained, and, before I begin to talk of its qualities, I would like to clear the ground a little in reference to what I am sure must appear to this meeting as a great amount of irregularity upon the part of the company I represent. Any person hearing only what has been said here, and judging of the company from what has been said here, must suppose that we must be a set of most thorough nincompoops—("Rather!" and loud laughter)—that we are thoroughly unbusinesslike men, and that we should really be displaced.

A VOICE: So you are; there is no doubt of it. Why, you can't put two accounts together. (Cheers, and cries of "Order!")

The CHAIRMAN: Gentlemen, fair play is a jewel; and I hope and trust you will hear Mr. Anderson throughout. (Cheers.)

Mr. ANDERSON: There is no doubt that a very great many apparent discrepancies have been brought forward to-night. One great discrepancy appears to be the irregular quantities of gas burnt in corresponding quarters of different years. Now, if I may be allowed to ask a question, I might ask—How is it that similar discrepancies have not occurred in former years, and have occurred in this year particularly? Now, I have in my mind a most satisfactory answer—an answer which I know is true, and it is this:—The districts which we supply all round here were formerly supplied by the Phœnix Gas Company most particularly, and partially by the South Metropolitan Company. The Phœnix Company has been in existence a great number of years; their services and meters were one mass of dilapidation. I state the truth when I tell you that we found, upon taking down 1000 meters of the old companies, but more particularly of the Phœnix Company, that great numbers of them were 30, 40, and 50 per cent. "slow"; and, on looking back to the practice of the Phœnix Company, we found that in many instances they had actually not taken the index quarter after quarter, but the inspector had guessed at the sum which the meter ought to have. ("Oh, oh!" and uproar.) I wish you to understand that I will not be guided by any of you. (Confusion.) It will be a saving of your own time to allow me to go on. (Tell the truth, then!)

The CHAIRMAN again appealed to the meeting to listen to Mr. Anderson. [A VOICE: But can't we express our dissent when he tells a direct and open falsehood? (Cheers.)] There would be plenty of opportunity after Mr. Anderson had finished, to reply to him.

Mr. ANDERSON: I was saying, when interrupted, that in a great many instances the Phœnix inspectors, in consequence of the dilapidated state of their meters, had gone on, taking them quarter after quarter at an average of corresponding quarters, and not from the figures represented on the index. This may be surprising to you, but it is not surprising to me. The Phœnix Company have been in a very bad state for a long time. (Interruption.) I am giving you my reasons for what I say, and you are acting very indiscreetly in interrupting me, and your interrupting me will not make me unsay one word, or keep me from saying one word which I intended to say. So you had better just be quiet. I say that the Phœnix Company had been in a very bad state. Perhaps you want proof of that? Well, they have been paying 2½ per cent. recently, but a number of years back they paid nothing at all, but had to borrow money to pay dividends. This is a fact known in the commercial world. One cause of their bad state was the bad state of their meters. Their services were in the same bad state. I have taken up some hundreds of their services in Bermondsey-street and Tooley-street, and I have found them a mass of holes, so that, instead of the gas being carried through the meter, it descended into the ground. The meter, again, was in holes, or its register was imperfect, and so the consumers got their gas nominally at 4s., but really at about 2s. ("Oh!" and laughter.) That is the fact. We had meter-provers down at our works. We put up an apparatus for the purpose of proving them, because it was a condition between us and the other companies that we should exchange meters. Theirs, however, being in such a bad condition, we had to send them back, and put up our own in place of them, so as accurately to register the actual amount of gas consumed. As a natural consequence, our accounts are up; that is the reason why our accounts are up. Is there any complaint as to the article that is passed through the meter? I am glad to say that, of all the complainants, there was only one gentleman who complained of the badness of the gas. There has not been a single word said, throughout the whole of the complaints, about the quality of the gas being bad; and I take that as a good omen that the consumers are satisfied with it. ("Oh, oh!" and laughter.) I would rather hear Mr. Fairey articulate his sentences than roar them. You have a tongue, sir, and you should represent your words in an intelligible way. (Groans.) I was going to say that, if the gas were bad, you would have a corresponding increase in the consumption. Now, we have 3000 consumers. There are about 200 persons here, and they are not all consumers; but supposing all the consumers present are complainants—(So they are!)—I know from our books that a large majority of the consumers have not had their accounts increased beyond the extra 6d. charged. (Then they are shareholders.) Their quantities of gas are the same as before. Those are the consumers who were with us all the time. Those who complain of the increase are those who belonged to the old companies, and had been using their dilapidated meters. (How about the Metropolitan? Why be so hard upon the Phœnix?) I won't answer you. (Cries of "Time!") If you keep quiet I will be done the sooner. I listened to you for a couple of mortal hours, and was quite good-humoured. Why don't you sit and listen to me now? ("We did n't tell untruths." Uproar.)

Mr. EVANS: I begin to suspect, from Mr. Anderson's looking at the clock, that he is speaking to time. He is a Scotchman, and has no doubt a great deal of the national foresight, but I don't think we will be "done" in that manner. (Cheers and laughter.) As he answers so daringly, and speaks with such boldness, I should like to know whether he is here as a gas consumer, or as a gas maker, or as the representative of the Surrey Consumers' Gas Company? Whoever he is, he must not speak the whole evening, and speak, too, in such a taunting and insulting tone. We won't put up with it. (Cheers.) We have not come here to test meters, or to go into the bad state of the Phœnix Company's affairs.

Mr. ANDERSON: I beg to interfere; I am in possession of the chair, and I shall not allow you to speak. (Uproar.)

The CHAIRMAN: Mr. Anderson, you have been asked by Mr. Evans

whether you come here as a representative of the Surrey Consumers' Gas Company, or as a consumer of gas?

Mr. Anderson: If gentlemen had only paid attention to my very first words, it would have saved them the trouble of putting the question. I said that I came here from curiosity, and not from invitation. ("Oh, oh!" groans, and hisses.)

Mr. Evans: Then, as you are not a consumer, and only came here for curiosity, I beg leave to move that you do not be heard. (Cheers.)

The Chairman put the motion to the meeting; and, after some confusion, it was carried by an overwhelming majority.

Mr. Anderson: Will you allow me to make a concluding remark? (Loud cries of "No!" and laughter.) [A Voice: If you had told the truth you would have been heard.]

Mr. Scott said that, though this year he had closed two hours earlier every evening, yet his gas account for the Lady-day quarter had increased from £1. 16s. 6d. to £2. 5s. 8d. When he mentioned this circumstance to the collector, the answer he received was—"Pray, sir, don't; we have so many of those complaints that the company would give you £100 if you tell them how it is." (Laughter.) The collector also said that the company were paying 7½ per cent., and intended to pay 10, but he (the speaker) did not intend that it should be taken out of his pocket by such an exorbitant demand as this. (Cheers.)

Mr. Evans gave Mr. Anderson credit for the improvement which had taken place in the company's gas since this agitation commenced; but—

Mr. Anderson disclaimed the compliment, declaring that there had been no alteration whatever in its quality.

Mr. Evans characterised the conduct of the company towards the consumers as most disrespectful. The company had treated their customers with the utmost contempt, and had not even condescended to accept the invitation to attend this meeting, and give a public explanation (if they had any to offer) of the irregularities complained of.

Mr. Anderson: They sent their representative, but you would not hear him. (Oh, oh!)

Mr. Evans said that this was the danger of allowing such a person to get on the platform at all. No one knew what character Mr. Anderson came there in. If the company had got the best of it, they would say, "Oh! we sent our friend Mr. Anderson"; but if Mr. Anderson got the worst of it, as he had done—(laughter)—then the company would say, "We don't know him." (Laughter.) If the Surrey Consumers' Gas Company did not supply a proper article in a proper way, and with proper civility, somebody else would be found to do so. It was like one man saying, "I'll sell stinking butter," and another, "I'll sell rotten potatoes"; but, then, another man would come and sell sweet butter and sound potatoes, and their custom would leave them. If the Surrey Company were not getting a fair profit out of their present price, let them charge 6s., or anything; but let the consumers know what they have to pay, and don't let it be taken out of their pockets so dishonestly. (Cheers.)

Mr. Jenkins drew attention to the fact that the consumers of the Borough district had been saddled with the extra 6d. six months before it was imposed upon the Deptford people. He also mentioned that the company had charged him for 13,000 cubic feet of gas when he had already paid for 8700 of that amount, which he was able to prove from the receipt which he had fortunately retained.

Mr. Whale said that he had been charged £10. 4s. (deducting 15s. 9d. for the old Phœnix meter being—not too slow—but too fast) for the last Lady-day quarter's gas, while in the corresponding period of last year the charge was only £6. 12s., less 5 per cent. for the fast meter.

The Chairman recommended the meeting not to entertain any more complaints, for, no doubt, almost every one present had some cause of complaint—(hear, hear, hear)—but to proceed at once to some definite and practical issue as to the course which might be advisable to pursue for the puspose of carrying on this agitation.

After some conversation, it was agreed that the committee of the Protection Society should be reappointed, with power to add to their number, and that the future action of the society should be left to their discretion.

A vote of thanks having been awarded with acclamation to the chairman, the meeting separated.

PHŒNIX GAS COMPANY.

Dr. Balance Sheet, Dec. 31, 1853. *Cr.*

Capital, 9000 shares			£441,000	0	0	Amount of plant, Midsummer	£415,582 13 0
Unpaid dividends			636	17	2	Less written off this half-year for depreciation in plant and leasehold property	2,077 9 0
Ditto tradesmen's accounts			8,902	16	7		413,504 14 0
Loan, with interest			10,305	10	0	Expended this half-year in extension of works	4,513 9 0
Balance, profit and loss:—							418,018 3 0
Undivided balance	£10,153	5 0				Amount due for rental	£29,054 18 1
Half-year's profit	7,741	18 3				,, coke	2,411 3 4
			17,895	3	3	,, breeze	520 19 0
						,, tar	598 19 9
						,, ammoniacal liquor	275 10 1
						,, sundries	3,756 15 5
							36,618 5 8
						Stock of coals	5,273 12 0
						,, coke	256 18 0
						,, breeze	173 5 0
						,, tar	235 18 0
						,, retorts	2,059 2 6
						,, meters	12,227 18 6
							20,226 14 0
						Balance at treasurer's	3,877 4 4
			£478,740	7	0		£478,740 7 0

Dr. Trade Account for the Half-year ending Dec. 31, 1853. *Cr.*

Coals used			£26,466	3	3	Rental for lights	£41,676 15 5
Tradesmen's accounts			6,114	18	5	Coke made	14,884 11 0
Retorts used			230	0	0	Breeze made	979 16 6
Meter repairs			1,828	11	6	Tar made	935 16 8
Rent, rates, and taxes			1,725	7	9	Ammonia	171 8 6
Directors	£500	0 0				Net profit	7,741 18 3
Auditors	21	0 0					
			521	0	0		
Salaries			2,020	16	6		
Wages			8,940	16	4		
Interest			148	7	1		
Bad debts and overcharges			832	9	11		
Depreciation in plant and leasehold property			2,077	19	0		
			£58,648	8	1		£58,648 8 1

WET AND DRY GAS METERS.

The *Leicester Mercury* of April 1 contained the following paragraph:—

"We learn that a series of experiments, for the purpose of testing the respective merits of wet and dry gasometers, have been made by the Watch Committee at the Townhall. On the first trial the dry meter registered 1180 feet, and the same gas passing through the water meter was registered only as 330 feet. A second week's result, after both meters had been carefully adjusted by a spirit level, gave 1480 feet for the dry and 730 feet for the wet meter. A trial was then made of the meters separately, under an equal pressure of gas, when the dry meter registered 73 feet, and the wet 65 feet, per hour. A final trial was then made by the gas passing first through the wet meter and then into and through the dry, the result of which was, that the wet meter registered 260 feet, and the dry 850 feet! These experiments will probably be considered to prove satisfactorily that the wet meter now in use in Leicester does not register unfairly to the consumer, as compared with the dry meter. The dry meter before being used was adjusted by an able and experienced workman, sent down by Mr. Defries, the patentee, so that there can be no doubt but justice was done in the various trials."

The same paper, in its issue of the 3rd ult., contained the following letter, satisfactorily accounting for the discrepancies above detailed:—

"Sir,—Seeing, in a recent number of your paper, particulars of the test to which my dry gas meter and the wet meter at the Townhall were subjected, and in which a discrepancy appears in the registration of the two, I requested permission from the lighting committee as well as the gas company to send my manager and my foreman to test both meters. I am bound to acknowledge that permission was unhesitatingly given. On Wednesday last the trial took place, at the Gas-office, in the presence of the superintendent of the public lights, the gas company's inspector, and my deputies, with these results:—

"1. The company's gasholder was tested by a meter I sent down expressly (which the day before had been tested at one of the largest gas consumers in the kingdom), and the gasholder was found correct. 2. My dry meter from the Townhall was tested, and found correct with all lights burning. 3. The wet meter from the Townhall was found

to be *four per cent. slow*, all lights burning. 4. The wet meter, with one light burning, was FOUND NOT TO REGISTER AT ALL. 5. The wet meter with four lights burning proved to be 40 per cent. slow—that is, REGISTERED ONLY 60 FEET FOR EVERY 100 FEET CONSUMED. 6. My dry meter with four lights burning was found as strictly correct as when first tried.

"With reference to the wet meter thus being slow, I have merely to remark, that some portion of the interior was defective; or, in other words, there was a leak in the drum or elsewhere, through which a certain quantity of gas passed without going through the regular channel, and therefore could not be registered. It will be in the remembrance of your readers, that when the two meters were tested by the committee my dry meter registered 70 feet in an hour, while the wet meter registered 65 feet. Had both meters been correct, even this slight difference would not have existed. I wish it to be understood, that when an imperfect meter is in full action, the gas rushes through with great rapidity, and the little that is lost is consequently not so material nor apparent; but mark the difference! When the lights at the Townhall were put out at night, or rather when only four or five lights were left burning for the night, the wet meter, in consequence of its defect, was 40 per cent. *slower* than the dry meter; and again, *if one or two lights* only were left burning, the wet meter *would not register at all*; while, taking the test above described as correct, the dry meter would be registering its proper quantity. This will account for the variations in the test made by the committee, and in which, had I or my deputies been present, the wet meter would have been put to the trial to which I afterwards subjected it, and its defect would of course have been apparent.

"I trust, sir, as the report that appeared in your paper was calculated to lead to the impression that my dry meter *was too fast*, you will, in simple justice to all parties, insert this explanation.—I am, sir, your obliged and obedient servant,

"N. DEFRIES.

"145, *Regent-street, London.*"

STOCKPORT BOROUGH GAS WORKS.

THE ANNUAL ACCOUNT OF RECEIPTS AND EXPENDITURE FOR 1852.

Dr. RECEIPTS.

To amount received for gas rents			£10,668	15	5
„ Amount	do.	public lamps	1425	14	5
„ Amount	do.	fittings	1100	5	9
„ Amount	do.	coke	696	4	7
„ Amount	do.	tar and spent lime	259	2	2
„ Amount	do.	from council	15,000	0	0
			£29,150	2	4

Cr. PAYMENTS.

By balance due to treasurer, Dec. 31, 1852			£7,889 19 10
Gas-making.			
By wages to stokers, labourers, bricksetters, fitters, &c., including salaries	£1732	16 10	
„ cannel coal, &c. (including an old bad debt, £589. 1s. 10d.)	5289	1 4	
„ cartage, wharfage, &c.	216	8 6	
„ lime for purifying	151	19 2	
„ oil, ropes, sal ammoniac, &c.	15	6 0	
„ iron, ironmongery, castings, &c.	155	4 4	
„ braziery	20	8 6	
„ wood work	25	5 0	
„ retorts, clay, firebricks, and lumps	582	18 1	
„ advertising	5	3 0	
„ water	1	12 5	
„ waste	0	7 6	
„ stationery	44	6 11	
„ sundry small payments	56	19 10	
			8,297 17 5
Lamp Department.			
By wages for lighting, extinguishing, and keeping in repair 727 lamps and 3 public clocks throughout the year	332	14 11	
„ braziery	24	12 6	
„ ironwork	13	4 0	
„ oil	18	9 0	
„ glazing	19	18 9	
„ waste	6	8 9	
„ copper tubing	8	0 0	
„ burners	12	0 0	
„ sundry small accounts	1	5 8	
			466 13 7
Meters, Fittings, &c.			
By wages	108	17 7	
„ meters	492	16 2	
„ ironwork	40	7 6	
„ lead pipe fittings	98	4 6	
„ copper tubing	5	0 0	
„ braziery	21	0 6	
„ sundry small payments	17	0 1	
			783 6 4
Rents, Taxes, &c.			
By chief and other rents	157	0 11	
„ income and property tax	66	15 3	
„ highway, poor, and other rates	231	4 8	
			455 0 10
Interest, Commission, &c.			
By interest to council on mortgage debt, less income tax	1425	14 5	
„ bankers' charges for interest and commission	442	13 4	
			1,868 7 9
Maintenance of Works.			
By wages	366	4 5	
„ iron, ironmongery, castings, &c.	72	8 6	
„ timber, and joiners' work	4	6 6	
„ oil, ropes, &c.	29	12 5	
„ brick and stone work	4	17 6	
„ braziery	3	0 0	
„ painting	1	9 8	
„ plumbing	1	12 6	
„ lead pipe fittings	21	2 0	
„ paving	57	2 2	
„ sundry small payments	6	18 3	
			568 13 11
EXTENSIONS OF MAINS AND SERVICES. *Service Pipes.*			
By wages for repairs and alterations of works, pipes, and services, taking up old pipes, relaying and cleaning them for other districts	352	2 0	
„ joiners' work, timber, &c.	21	10 6	
„ brick and stone work	51	17 6	
„ lime	4	0 3	
„ ironwork	46	11 1	
„ water	3	0 0	
„ lead pipe fittings, &c.	228	4 7	
„ painting	3	10 0	
„ braziery meter, &c.	11	4 0	
„ small accounts	2	12 6	
New Mains.			
By new mains, castings, &c.	924	16 6	
„ tarred yarn	3	14 0	
„ sal ammoniac	8	0 0	
			1,661 2 11
EXTENSIONS—HEATON-NORRIS.			
By wages to fitters, puddlers, excavators, pipelayers	750	11 5	
„ excavation	335	10 11	
„ stonework	296	0 0	
„ bricks	553	18 11	
„ timber	61	13 0	
„ gasholder	3260	0 0	
„ lime	211	12 0	
„ ironwork, castings, &c.	641	0 6	
„ advertising	4	4 0	
„ clay	53	0 8	
„ plumbing	11	9 6	
„ cement	2	3 10	
„ tarred yarn	2	0 0	
„ water	21	7 0	
„ sundry small accounts	43	0 0	
„ freehold property	350	0 0	
			6,597 11 9
			£28,588 14 4
By balance			561 8 0
			£29,150 2 4

THE STOCKPORT GAS WORKS IN GENERAL STOCK, SHOWING LIABILITIES AND ASSETS.

Dr. LIABILITIES.				*Cr.* ASSETS.			
Jan. 1, 1853.				Jan. 1, 1853.			
To council of the borough for the amount of the original mortgage debt		£26,700	0 0	By value of the works on Jan. 1, 1853		£36,265	7 1
„ ditto for new loan		15,000	0 0	„ depreciation 3½ per cent.	£1269 5 9		
„ tradesmen's accounts for materials for lamps	£ 27 10 10			„ cash expended upon maintenance of works, £568. 13s. 11d.—less £91. 0s. 10d.	477 13 1		
„ ditto for gasmaking	2215 8 7					791 12 8	
„ ditto for meters, &c.	493 15 4			„ value of the works Dec. 31, 1853		35,473 14 5	
„ ditto for Heaton-lane	1023 11 1			„ tradesmen's accounts, for wear and tear, or maintenance of works, as per contra		102 13 9	
„ ditto for extensions and mains	817 15 9			„ extensions of Heaton Norris, as per cash payments	6397 11 7		
„ ditto wear and tear, or maintenance of works	102 13 9			„ ditto, as per last account	44 3 6		
		4,680 15 4				6,553 8 1	
„ balance in favour of works		5,336 13 5		By ditto, as per contra		1,023 11 1	
				„ extensions of mains, as per cash payments	1661 2 11		
				„ ditto, as per last year's account	832 9 9		
						828 13 2	
				By ditto, as per contra		817 15 9	
				„ stock of working materials		709 10 1	
				„ debts due for gas		5,176 10 4	
				„ debts due for fittings		364 9 2	
				„ debts due for coke, &c.		105 14 11	
				„ balance in bankers' hands		561 8 0	
		£51,717 8 9				£51,717 8	
Profit of the year.							
To balance in favour of works, Jan. 1, 1853		2,855 17 9					
Actual profit for 1852 (after paying interest upon capital) as shown in the working sheet		2,480 15 8					
		£5336 13 5		By balance in favour of works		£5,336 13 5	

THE SHEFFIELD GAS COMPANIES.

The negotiation between the two local gas companies has ended in an agreement, under seal, to prosecute an amalgamation. When we last noticed the subject, they were at issue upon a vital point, which threatened to put an end to the treaty. The case stood thus:—The new company had to meet a certain amount of liabilities which they had incurred, and they wished the old company to take the concern as it stood—"for better, for worse." The old company said, "No; tell us what the amount actually is; at any late, let us know the worst." The rejoinder was that it was impossible to state the amount, as there were a great many accounts unsettled. But they gave an approximate list of liabilities, amounting to something over £15,600, at the same time stating that it did not include the whole. It was, therefore, arranged that they should be allowed a margin of £1500 in excess. This would have placed the new company in the position of having to pay off the whole of their liabilities, including the land purchase, with an amount something like £17,000, and if this had proved insufficient, they would have had to make up the deficiency amongst themselves. This arrangement was made between the acting representatives of the two companies, subject to the approval of the new company's board of directors. They, however, declined to sanction it, and, consequently, the proceedings thus far went for nothing. A collateral question then rose of so important a nature as to be made the pivot upon which the entire negotiations turned. A question was started as to how the capital was to be raised for paying off the new company's liabilities. The old company proposed that they (the new company) should sell their loose plant, consisting of a large quantity of metal pipes, which it was understood cost £6000 and odd, but had become worth half as much more. The new company's directors then discovered that £6000 did not represent the *cost* price of the pipes, but their enhanced value last Christmas, when stock was taken for the purpose of Alderman Carr's report. It was now agreed that they should sell the pipes for the best price that they would fetch, and, assuming that they would realise £6000, that would leave £11,000 to be raised in some way, to make up the required sum of £17,000. It was suggested to them by the old company that they should get in their arrears of calls, the recoverable portion of which was set down by themselves at £4300; and that they should raise the remaining £7000 by a mortgage on their works, the old company agreeing to take the property subject to such mortgage. The new company replied that they should never be able to procure such a loan, and they proposed to obtain the £7000 by selling unissued shares to that amount to the highest bidders. At first the old company objected to shares being issued at less than £5 per share; but, after consideration, they gave way, and were willing to sanction an issue at £4, being the rate determined by the parliamentary committee for the purpose of the amalgamation. The market price of the new company's shares was then about £3. 5s., and they would not agree to make up the difference between that and the £4 out of their own funds. They took their stand on their assumed right to raise capital for necessary objects by the issue of shares at such prices as they could realise, without having to make up any deficiency. The old company protested against that assumption, and neither party would give way. The only practical course open to them was, to appeal to the arbitrator. With this object in view they proceeded to London, and met Mr. Buller at his chambers in the Temple on the 10th ult. The old company were represented by their law clerk (Mr. Wake), the chairman (Mr. W. Lockwood), and the managing director (Mr. Edwin Unwin); for the new company there were the two solicitors (Messrs. Vickers and A. C. Branson), the chairman (Mr. Alcock), and the secretary (Mr. G. Flintoff); the parliamentary agent of each party was present likewise. The old company claimed a right to have a definite statement of all the new company's liabilities that they would have to take to under the amalgamation. The arbitrator decided that this ought to be conceded, and it was yielded accordingly, an arrangement being come to that the total liabilities, including the previously proposed margin of £1500, should not exceed £17,000, the land purchase (£3277) being comprehended in that sum. Then, with respect to the shares, the arbitrator decided that the new company had no right to issue shares at all without the old company's consent. Having got this point settled in their favour, the old company said they were willing to allow a sale of shares at any price, so that the new company accounted for such shares to them at par, namely, £5 per share. It was further decided that the new company should sell their pipes and collect their arrears of call; and, as there would still be a deficiency of some £7000, they should obtain a mortgage on their works. Supposing that the payments should exceed the £17,000 which had been agreed upon, and the excess remained unliquidated after the act of amalgamation, it was to be defrayed by the amalgamated company, and a corresponding amount was to be raised by a call on the new company's shares which should carry no interest, or, in lieu of this, the amount of excess might be deducted from the dividends of the new company's proprietary as such dividends accrued.

[The new company were dissatisfied with the decision of the arbitrator, and Mr. Alcock sought an interview with Mr. Jackson, M.P. Mr. Alcock represented to him that they had understood him to intend, when he suggested the terms of the amalgamation, that the old company should provide the new company the funds with which to meet their liabilities, or that they should be allowed to issue new shares at such price as could be obtained in the market. Mr. Jackson said he had not contemplated the new company issuing any more shares, and that, as to the old company finding them money, they could not legally do so. He thought the new company would have no difficulty in borrowing the money, inasmuch as they could give ample security for the amount they would require. Mr. Jackson added, that when matters became settled the shares of the new company would be worth £8 each.]

Amongst the other stipulations settled by the arbitrator were the following:—The old company are to be furnished, within one month after the 30th ult., with the particulars of what the new company have expended on capital account, also a current account of their receipts and payments on revenue account from the time that they began to make and sell gas. The two companies are to be carried on separately and distinctly until June 30, 1855, the new company standing to their own profit and loss from the commencement up to that time. They are not to extend their works in the meanwhile without the consent of the old company. The scale of voting, after the amalgamation, has been settled thus:—Every holder of stock of the amalgamated company (for all classes of shares are to be consolidated) to the amount of £12 and up to £48 is to be entitled to one vote, and every additional £48 of stock to carry one additional vote—the maximum number of votes of any one shareholder being 30. This scale is about the same as that of the present old company, except that it will enfranchise a number of small proprietors. As to the £200 voted to the chairman and Alderman Carr, it was arranged that half the amount should be charged to the new company's revenue account and half to the capital account; or, in other words, that one moiety should be borne by the new company and the remainder by the amalgamated concern. The umpire is to draw and settle the bill of amalgamation in accordance with the agreement which has been arrived at. He will submit the draught to the respective parties, and hear objections to any of its provisions; but the final settlement will rest with the umpire, neither party having the power of appeal. One important element in the agreement was this—that the new company are to have allotted to them, as their interest in the amalgamated company, 9816 £4 shares, representing a capital of £39,264. Whatever shares they issue in the mean time—if any—will have to be added to that amount, and will lessen to the same extent the mortgage debt which the old company have agreed to adopt. As the capital of the amalgamated company is to be increased by £130,000, the amount which will remain for distribution amongst the shareholders of the old company will be £90,736, less the amount of any shares which the new company may issue instead of raising capital on mortgage.

The negotiations were brought to a close on the evening of the 14th ult.; and the law stationers were employed during the whole of the following night in engrossing the deed, which extended over a great many skins of parchment. On Thursday, the 15th ult., at twelve o'clock, the parties went before the parliamentary committee, when Mr. Vickers, on behalf of the new company, stated that everything had been amicably arranged, and that he wished to withdraw the bill. This was acceded to by the committee, and the members departed.

The deed, as soon as it was settled by Mr. Buller, was signed by him as umpire. Mr. Wake and Mr. Vickers, at the same time, undertook that their respective companies should attach their respective seals thereto—the former on the Friday, and the latter on the Saturday following.

THE CITY OF LONDON COURT OF SEWERS.

At a court held at Guildhall, on Tuesday, June 13—Mr. Deputy PEACOCK in the chair—

Mr. H. L. TAYLOR said, with reference to a letter from the Great Central Gas Consumers' Company: I thought there was a communication to be made to-day?

Mr. T. H. HALL: Yes; the paper has never been before the court; it has never been read.

The CHAIRMAN: We have not time to take it now; we had better take it the first thing next Tuesday.

Mr. Deputy CHRISTIE: We had better hear what it is first.

The CLERK then read the letter, as follows:—

28, *Coleman-street, May* 30, 1854.

"Sir,—The directors of this company have had under their consideration your circular to gas companies of the 17th instant, conveying the request of the Commissioners of Sewers that we will now, and at the commencement of every future year, communicate to you 'the nature, the extent, and the localities of any works, of laying new mains in the place of, or in addition to, existing mains in any streets within this City which this company may contemplate executing within the current year.'

"The directors instruct me to say that it will afford them much pleasure, at all times, to comply with this most reasonable and valuable suggestion.

"By the observance of such an arrangement, the commissioners will have before them at one time a general view of the prospective wants of the various gas and water companies, and your able engineer will possess the means of guiding and controlling their operations in conformity with some uniform plan, by which the expenditure of the companies will be economised, and the convenience of the public largely promoted.

"This company are about to submit to the commissioners a proposal to lay down a set of small mains and pipes for the purpose of supplying the portion of their customers who may desire to be furnished with cannel coal gas, prepared by a process combining economy, purity, and illuminating power in a higher degree than that which is now in use.

"It appears by Dr. Letheby's report, and other reliable sources of accurate information, that since the formation of this company, and by its instrumentality, the quality and luminosity of the gas used in the City has been lifted more than 25 per cent. above the act of Parliament standard, which was fixed six years since at a high average of the gas then supplied by the City and Metropolitan companies. Through the instrumentality of the Gas Consumers' Company, the price has been likewise reduced from 6s. per 1000 cubic feet to 4s.; and the street lights are now taken by contract at a price which effects a saving to the ratepayers of nearly £3000 per annum—a saving for which, in your evidence before the commissioners for inquiring into the corporation, you justly claimed credit for your commissioners; for, if they had not given permission to this company to lay down their mains and pipes, the gas then in use might have remained unimproved, and the old price have been still maintained for both private consumption and the public lights, as the old company had repeatedly declared that the gas then in use could not possibly be manufactured and sold at less than 6s.; and that the contract charge for the street lamps was actually less than the cost price.

"We live in an age of progressive improvement; the discussion that accompanied, and the competition that followed, the formation of this company have taught the public not to rest satisfied with the description of gas in former use, though cheapened and improved; but consumers ask for a liberty of choice between Newcastle coal and cannel coal gas, as each has its own peculiarity, rendering it desirable for some purposes for which the other description of gas is less fit.

"Notwithstanding the credit the Consumers' Company have claimed and received for the benefits they have hitherto conferred upon the public, they are not disposed to rest their claims for future consideration upon the recollection of the past.

"They are prepared with the requisite works and the requisite capital to lay down an additional set of pipes, and supply such of their customers as may desire it throughout the City with an improved cannel coal gas manufactured by a peculiar process invented by Mr. Croll.

"When this company were laying down their mains throughout the City four years since, they were impeded in their operations by the most vexatious opposition. By the firmness of the directors, and the ability of their engineer, sustained by the goodwill of the citizens and the sanction of the commissioners, the company have now become firmly established, and all angry feelings between themselves and the old companies have subsided; so that there need be no apprehension that the public will suffer any additional inconvenience from the delays to which the former contention between them then gave rise. The pipes required to be laid down for the cannel coal gas are much smaller than those which were necessary for the other supply; and Mr. Croll informs us that, by a system of arrangements, he will be prepared to lay before your engineer everything that is needed for the supply of both descriptions of gas by this company throughout the City, which may be executed with comparatively little inconvenience, and in a short space of time.

"Anticipating the period would arrive when the demand for gas would considerably increase, the company laid down throughout Cheapside and some of the principal streets, a large supplemental main, which is available for the supply of cannel coal gas, and would render the breaking up of the carriage way in those streets unnecessary.

"As soon as Mr. Croll has perfected his plans they will be laid before you for the approval of your engineer.—I am, sir, your obedient servant,

(Signed) "R. M. MASSEY.

"Joseph Daw, Esq., Sewers-office, Guildhall."

Mr. Deputy CHRISTIE: This is a very large and a very important question, Mr. Chairman, which is before you.

Mr. Deputy HARRISON: Is there any similar application from any other company?

Mr. Deputy CHRISTIE: I can very well understand their making the application; it is in order to put themselves upon the same footing as the other two companies. Now, the Chartered Company are able to supply cannel coal gas, and the other, the City Gas Company, are also able to do so, and they applied here the other day to be allowed to make some little connection with the other mains through the district. They have a duplicate main in the City. Now, many persons have considered the propriety of having cannel coal gas; no doubt it is a cheaper light, although at 6s. per 1000, and there is a preference given to it. The other companies have an opportunity of supplying it, and the Great Central Company wish to put themselves in that position all through the City. The same question has arisen in other parts of the metropolis; there are other companies also in the same position. All the companies participate in the benefit of the supply of gas to each of their consumers, and it is worth consideration whether it should not be referred to a committee to see whether they can come to some arrangement with the companies, so that there should be but one main. In making this statement I should observe that there will be no end to the difficulties connected with this application if it is allowed, and those difficulties we shall have to deal with; there will be a continual disturbance in the streets, and an enormous expense to the City. I cannot tell you how it can be arranged; but certainly I think it had better go before a committee to consider the whole subject, and see if they cannot come to some general arrangement. The Great Central will no doubt be put in a more favourable position compared with the other two companies.

Mr. H. L. TAYLOR: I quite agree with what has been stated by Mr. Christie; there can be no doubt that it is a very important question—important as regards the Great Central Company, and important as regards the City of London, inasmuch as this extra main cannot be laid down without disturbing the pavements; and that is a very large question, and it is one which I think we should not refer to a committee to-day, seeing that there are so few present, but that it should be read at our next meeting if you take it up, because there is a great deal more in it than Mr. Deputy Christie put forward.

Mr. Deputy CHRISTIE: I merely named the difficulty, not approving or disapproving it here.

Mr. H. L. TAYLOR: Here is the difficulty you put them in: this Great Central Company cannot supply their gas at all—they would have to go to Parliament to get its sanction; at present they can only tax the citizens with 4s. gas; they have no right to charge more. This is an idea that has completely upset all that they have offered, all that they have proposed, all that they have held out, and everything that has been before mentioned; they now seek to upset it at once. At present, I ask you not to refer it to the committee in its present state. This meeting is so small that it would be unwise to do so, because, as my friend says, it is a very large question—it is not merely a question of laying down this extra set of mains, but it is also allowing the Great Central Company to charge what they please. They are now charging 4s., and I will keep them to it. If it is possible to keep them to that price, they shall never get a farthing more.

Mr. HARRISON: I have great pleasure in seconding the motion to consider the question next meeting, but it does appear to me that there is a statement, but there is nothing else at present to consider. The statement goes to this effect: that the parties are to submit to us a scheme for carrying out a certain arrangement to enable them to supply a particular gas. They have only, up to the present time, referred that scheme to their own engineer, and they say that when they are prepared they will submit it to the commission. I quite agree that that will be the time for the commissioners to take it up. When that is produced, I shall look, for one, with the greatest regret upon any application to require us to permit the whole of the streets to be taken up again to relay mains for gas, for that is a thing which I cannot look at without great anxiety and apprehension. If permitted to one, we must permit it to others; but to give them permission to lay down another main, I hope the commissioners will resist to the very last moment, if they have the power to resist it. The public convenience will be terribly interfered with. The permission to lay down two sets of mains through our streets is one I should look at with wonderful anxiety; and I do hope and trust that it will not be carried into effect. A suggestion has been thrown out by Mr. Christie, that if there is something very superior that can be manufactured in the shape of gas, it should be adopted. That suggestion seems most feasible, but the idea of having two sets of mains is monstrous. One set is surely enough for this extra fine light. I know nothing about this cannel gas; my friend is an authority on that question, but I hope we shall not have the streets broken up again by three companies. I do hope and trust that we shall take it into consideration next Tuesday, and I shall be prepared to come then and hear anything that may be said about it. At present, though we may take it up, we do not get a plan before us, but the first words are, "We are preparing a plan which we will submit to your consideration." Under these circumstances there is nothing before us, but the paper must be read. Observations cannot be allowed now, reflecting on the character of one of these gas companies, without affording an opportunity to every other member of the commission to say what he pleases on the subject. Therefore, the observations being made, we must again decide to have another gas field-day if that is to occur. I am delighted to hear the sentiments expressed that all angry feeling has gone—that nothing of that kind is left, and that now there is a kind feeling between the three parties. I hope that it will be made manifest to the commissioners that the great gas parties have coalesced, and that there will be no longer any effervescence. If it is to be considered next Tuesday, I have no objection to that course. However, as my friend Mr. Taylor thinks it necessary that it should not be disposed of, I will give him an opportunity of considering it next commission day.

Mr. T. H. HALL: There is no motion before the court. I have heard the letter read; it contains no request, but it contains an intimation that possibly, at some time or other, we may have a request. I move, that the letter having been read, it requires no reply.

The CHAIRMAN: It might be, that it be laid on the table; but probably that might not be thought fit.

Mr. T. H. HALL: No, not that; I think that looks like an offence. In reality, there is no action required upon it by us. When they shall give us their views it will be time enough to take up the question. If I understand Mr. Taylor rightly, and he has looked at the thing closely, he is of opinion that they have no power to do the thing without going to Parliament.

Mr. Deputy CHRISTIE: If they chose to charge 4s. for it.

Mr. HALL: If we give facilities to other companies we must give

the same to them. It will be soon enough to consider that when we have the question before us. We have had the letter read, and we find that it contains no request, therefore no answer is required. I move, that the letter having been read, and it containing no request, there is no occasion for this committee to pass any resolution on the subject.

Mr. DAW: I so read it, and therefore I debated in my own mind whether I would lay it before the board.

Mr. HALL: You see it is the letter of a public company. I should be exceedingly sorry if this court is to be always made the vehicle for a long harangue, or a long letter from any particular company. It looks as if that which is wanted to be given to the public was always required to be given to them through this court. I should dislike that, whether for one company or the other. If they want long addresses, let them write them to the newspapers. There is no request before us, but we have a long letter, and I hope that this letter, as connected with this court, will not get into the newspapers, because, in reality, it does not require an answer. But, whenever the application comes, we must grant the same facilities to this body as we would grant to anybody else. We ought to do alike to all parties when they supply the City. When that application comes, that will be the time to consider it. I agree with the Deputy, that it will be a sad and serious moment for the citizens of London if this is permitted. We have a vast number of water companies, a vast number of electric companies and gas companies; and if this is to be done there will occur this state of things, that they will require not only the power of giving one sort of supply, but presently will require the power of giving another, and if the electric companies are to give the one a cheap sort of communication, and the other a dear sort of communication, there will be two sets of wires, and the same with water and gas. What is to be the state of the streets of London? I do not say that I look at it with all the alarm that my friend does. I do not know what will be the result of the expenditure of that body: they may pretend to set it to rights, but they will invariably spoil the streets if they are to go through the City. After the pavement is once taken up, it is never well laid down again until the whole street is laid again, for it is always dropping down in some part or other. I regret the result of this application, but I do not see that this letter requires any action on our part.

The CHAIRMAN: I have heard it asserted out of doors that the directors are going to Parliament to get fresh powers. There is one of the directors present.

Mr. Deputy HARRISON: Leave it to themselves to do what is right. If they go to Parliament they will have the power.

Mr. TAYLOR: If they go to Parliament to ask for an increase in the price of gas, we must go there and resist it to the utmost.

Mr. Deputy HARRISON: My friend has resisted a reduction in the price of gas.

Mr. HALL: Now he has got the thing he began with.

The court then broke up.

DEPTFORD GAS WORKS.—Mr. Hawksley has been appointed arbitrator on the part of the Deptford Gas Company, and Mr. R. P. Spice, of Richmond (Surrey), on the part of the Surrey Consumers' Gas Company, for the purpose of ascertaining the value of the Deptford works, under the agreement for their sale to the Surrey Consumers' Company.

BROMLEY, KENT.—A Consumers' Company has been formed in this town, which has purchased the gas works of Mr. Stephen Hutchinson, for the sum of £2500.

PWLLHELI.—A company has recently been formed for the lighting of this small seaport town with gas; and upon competition plans being sent in for the erection of the works, those submitted by the Provincial and Continental Gas Company of London were selected.

MINUTES OF EVIDENCE ON THE LIGHTING OF THE HOUSE OF COMMONS.

Mr. ALFRED KING's Evidence—(*continued from p.* 126).

2333. You stated that the products of combustion from the cornice light escaped through what you called the lattice of the cove, I think?—Yes.

2334. Therefore, there are no such tubes as those which you have described for the sun-burner, applied to the cornice lights?—No.

2335. Did you state that these cornice lights were about two feet from any point of contact with the building?—Fully that.

2336. Is there no danger, do you think, from those lights being so near a portion of the building?—If a measurement were taken perpendicularly from the top of the lights to where that line would touch the cove, it would be considered more than two feet, the nearest point being a horizontal line from the burner.

2337. Vertically, what is the distance?—I should think four feet at least.

2338. Have you ever passed your hand along a point immediately vertical to the light?—I have not; but the room has been in use three years; it has been frequently lighted, and there is no discoloration.

2339. Mr. LOCKE.] The lights round the cornice have the appearance of being very nearly equidistant?—Yes, very nearly.

2340. Can you tell whether they are in clusters of three or six when looking at the stream of light?—Yes; you would see they are in clusters of three at once.

2341. Mr. STEPHENSON.] Only when you square upon it?—Yes.

2342. Mr. LOCKE.] There is probably not more than an inch between the clusters of three, and between the jets of each burner of three?—The lights are very nearly equidistant; the effect of the cluster of three is in a great measure produced by the centre one being placed a little above the other two; or else, taking the distance from centre to centre of the lights, I believe they as nearly equidistant as possible.

2343. Sir D. NORREYS.] In answer to a previous question, you stated that your system of lighting could be introduced into the ceiling of the House of Commons?—Yes; I think the sun-burner system could be introduced.

2344. It would, in point of fact, be merely clustering lights in the ceiling?—Just so.

2345. Which is done at present, but not by an arrangement of which you approve?—I believe, from what I could see the other night, that those lights are vertical lights in the ceiling of the House of Commons at present.

2346. Mr. STEPHENSON.] They are horizontal rings?—Horizontal rings, but vertical lights.

2347. Mr. DEEDES.] As you say that you would have no difficulty in applying this system of lighting to the present House of Commons, have you turned your attention at all to the cost at which you could do it?—Do you mean the cost of the apparatus necessary?

2348. Yes.—I should think £50 would do it.

2349. CHAIRMAN.] Should you propose to light the House of Commons by sun-burners, or by lights round the cornice?—There might be a combination of both.

2350. Have not the lights which you describe at the Philharmonic Concert-room at Liverpool a certain amount of visible movement?—There is a certain amount, but the movement is so trifling that it never could be observed by any person except by one who was looking out for the movement.

2351. Mr. LOCKE.] It does not distract the eye of the spectator in any way?—Not at all.

2352. Have you often been in the room yourself?—No, not often.

2357. Mr. LOCKE.] What would be the expense of one cluster of lights, sufficient for one panel of the House of Commons, of about two feet to two feet six square?—I presume you refer to a complete sun-burner, with its cone and cluster of lights?

2358. I do. Supposing you were called upon to furnish one of those burners, with its pipe to be attached to a panel of the House of Commons in the ceiling, and leading in the room above to an ordinary gas supply, what would be the cost of it?—I should think not above £10 or £12.

Henry Cruger Price, Esq., C.E., examined by the CHAIRMAN.

2433. Has the mode of lighting the House any practical influence upon the plan of warming and ventilation?—Yes; I think it is a very important ingredient, because, if the mode of lighting be one that generates a large amount of heat, it may produce a greater power of rarefaction than you require for ventilation; there would then be great difficulty; you would be obliged to draw an excess of air in to answer that rarefaction; that would be one difficulty. But there is another which has been suggested to my mind, from some discussions that I have heard during my attendance here, and which, I think, has been rather overlooked. I think that the radiation of heat downwards from the ceiling is a most important consideration, looking at the House of Commons. There was a discussion as to the advantage of carrying the lights nearer the ceiling; it struck me that it would be a very bad thing for your object if you did so.

2434. Why?—Because of the downward radiation from the ceiling. I conceive that, if such a principle as has been the subject of discussion to-day were carried out, the heat of the ceiling, from those coves, for instance, would be so raised in temperature by the continual radiation of the gas lights upon them that they would become powerful downward radiators of heat, and persons in the gallery would very sensibly feel the effect upon their heads.

2435. Then you consider that the mode of lighting the House has a very material effect upon its ventilation?—It may have; that is a matter to be ascertained. When I saw it I thought it was as well arranged as it possibly could be in reference to ventilation. The chandeliers I thought were satisfactory; with the upward movement of the air, which is the correct one, there would be no interference by the mode of lighting.

(*To be continued.*)

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Share List.

(Directors and Managers of Gas Works are earnestly requested to enable us to rectify the errors and fill up any omissions in the following List.)

The Companies whose names are printed in italic type are incorporated by Act of Parliament.

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£	**ENGLAND.**	£ s. d	£ s. d	£ s. d
		Aberdare			
		Abergele			
		Aberystwith			
		Abingdon			
1050	10	*Accrington*	10 0 0	7 0 0	15 10 0
		Albrighton			
		Alcester			
		Alford			
		Alfreton			
		Aluwick			
		Alston Moor			
250	10	Alton	10 0 0	5 0 0	10 0 0
800	5	Altrincham	5 0 0	6 0 0	6 0 0
170	10	Ampthill	10 0 0	5 0 0	10 0 0
350	10	Andover	10 0 6	5 0 0	11 0 0
330	5	Appleby	5 0 0	3 0 0	2¼ to 2½
		Arundel			
		Ashbourn, Derby			
292	5	Ashburton	5 0 0	5 0 0	
		Ashby-de-la-Zouch			
		Ashford, Kent			
1600	30	*Ashton-under-Lyne*	30 0 0	10 0 0	60 0 0
		Atherstone			
		Axminster			
200	20	Aylesbury	20 0 0	5 0 0	21 0 0
		Aylsham, Norfolk			
		Bacup, Lancashire			
		Bakewell			
200	10	Baldock	10 0 0	5 0 0	10 0 0
1000	10	Banbury	10 0 0	5 0 0	10 10 0
		Bangor			
500	5	Barking, Essex	5 0 0	5 0 0	5 5 0
260	10	Barnard Castle	10 0 0	5 10 0	10 15 0
		Barnsley £6000		7 10 0	
100	20	Barnstaple	20 0 0	5 0 0	23 0 0
1158	2	Barton-on-Humber	2 0 0	5 0 0	2 0 0
120	25	Basingstoke	25 0 0	7 0 0	35 0 0
2500	20	*Bath*	16 0 0	10 0 0	30 to 32
		Battle £2000		6 0 0	
56	26½	Bawtry	26 10 0	5 0 0	25 0 0
300	30	Bedford	25 0 0	4 0 0	20 0 0
200	10	Bedworth	10 0 0	5 0 0	11 0 0
		Belford			
		Bedale, Yorkshire			
		Belper			
		Beminster			
420	5	Berkhempstead	5 0 0	6 0 0	6 0 0
700	10	Berwick-on-Tweed	10 0 0	6 0 0	12 0 0
		Bewdley			
280	10	Bideford	10 0 0	6 0 0	10 10 0
		Biggleswade			
170	10	Bicester	10 0 0	6 0 0	11 5 0
		Bilston £15,100	5 0 0	7 0 0	6 10 0
		Billericay			
		Bingham			
		Bingley £7400		4 0 0	
		Birkenhead £70,000	35 0 0	3 0 0	35 to 37
2400	50	*Birm. & Staffordsh.*	50 0 0	10 0 0	99½ to 100½
2400	25	*Ditto*, new shares	10 0 0	10 0 0	15 to 16
938	75	*Birmingham*	75 0 0	10 0 0	158 to 160
		do. 1-10 shares			15 to 16
		Bishop's Auckland			
140	25	Bishop's Stortford	25 0 0	5 0 0	24 0 0
3000	15	*Blackburn*	15 0 0	10 0 0	25 0 0
		Blandford			
		Blythe			
		Bodmin			
		Bognor			
3909	16½	*Bolton*	16 10 0	9 19 5	39 0 0
		Boroughbridge			
160	50	*Boston*	50 0 0	10 0 0	75 0 0
200	10	Bourn	10 0 0	5 0 0	10 0 0
160	10	Brackley	10 0 0		
		Bradford, Wilts			
	25	*Bradford, Yorksh.* £45,000	25 0 0	10 0 0	49 0 0
		Brampton, Cumberland			
		Brandon, Suffolk			
		Brecon			
		Bridge-end, Glam.			
6000	5	*Brierly Hill*	5 0 0	4 0 0	5 2 6
		Brighouse			
2250	20	*Brighton*	20 0 0	5 0 0	15 to 16
1125	20	„ new shares	16 0 0	5 0 0	10 to 12
2471	20	*Brighton and Hove*	20 0 0	3 10 0	
107	8	„ new shares			
179800	Stk.	*Bristol United*	Stock	8 0 0	170 to 175
154	8	Brixham	8 0 0	5 0 0	5 to 6
		Braintree			
750	50	*Brentford*	50 0 0	5 10 0	48 to 50
800	25	„ new shares	11 0 0	5 10 0	11 0 0
		Brentwood			
200	30	*Bridgwater*	30 0 0	5 0 0	30 0 0
400	10	Bridlington	10 0 0	5 0 0	10 0 0
		Bridport			
		Brigg			
		Broadstairs			
		Bromsgrove			
		Bromley (Kent)			
		Broughton			
120	10	Bruton	10 0 0	4 0 0	8 0 0
		Brynmawr			
100	25	Buckingham	25 0 0	6 0 0	28 0 0
600	12	*Burnley*	12 0 0	10 0 0	
		Burslem&Tunstall			
		Burton-on-Trent			
		Bury, Lanc. £6570			
		Bury St. Edmund's		5 0 0	
200	10	Buxton	10 0 0		
		Callington			
		Calne, Wilts			
		Camborne			
	50	*Cambridge* £34,560	50 0 0	7 0 0	76 0 0
240	50	*Canterbury*	50 0 0	6 0 0	61 to 63
240	25	*Ditto*, second issue	25 0 0	6 0 0	30 to 31
800	25	*Cardiff*	25 0 0	7 10 0	34 0 0
		Carmarthen			
		Castle Cary			
249	5	Castleford	5 0 0	5 0 0	5 0 0
300	5	Castletown (Man)	2 0 0		
		Chapel on the Frith			
		Chard			
		Chatteris			
255	10	Cheadle	10 0 0	5 0 0	10 0 0
200	50	Chelmsford	50 0 0	5 0 0	84 0 0
		Cheltenham £18,732		9 0 0	
		Chepstow			
230	10	Chesham, Bucks	10 0 0	5 0 0	10 0 0
		Chester			
250	5	Chester-le-Street	5 0 0	6 0 0	5 0 0
		Chesterfield £13,125		4 17 6	
240	25	Chichester	25 0 0	6 0 0	30 0 0
		Chippenham			
		Chipping Norton			
		Chorley			
		Christchurch			
		Cirencester			
		Clare (Suffolk)			
		Cleckheaton, York.			
		Clitheroe			
750	4	Cockermouth	4 0 0	7 0 0	5 0 0
		Colchester			
		Collumpton			
		Colne, Lancashire			
		Coleford, Gloucest.			
300	5	Coggeshall	5 0 0	3 0 0	3 0 0
200	25	*Congleton*	25 0 0	5 0 0	31 0 0
		Conway			
		Cowbridge			
		Corsham			
800	25	*Coventry*	25 0 0	6 0 0	30 0 0
		Cowes			
300	5	Crowland			
		Croydon ... £30,000		5 0 0	
		Cranbrook ... £1900		5 0 0	
		Crayford & Bexley			
420	5	Crediton	5 0 0	5 0 0	6 0 0
		Crewe, Cheshire			
		Dalton			
		Darlaston			
		Darlington&Water			
250	20	Dartford	20 0 0	7 10 0	27 0 0
125	20	Daventry	20 0 0	6 0 0	24 8 0
		Dawley, Salop			
316	5	Dawlish	5 0 0	8 0 0	7 10 0
		Deal			
		Dedington			
500	6	Denbigh	6 0 0	5 0 0	6 0 0
820	10	*Deptford*	10 0 0		1 to 2
	25	*Derby*	25 0 0	10 0 0	50 0 0
90	20	Dereham (East)	20 0 0	5 0 0	21 0 0
4000	5	*Dewsbury*	5 0 0	7 0 0	8 12 6
		Devizes			
7000	5	*Devonport*	5 0 0	6 0 0	7 10 0
280	25	Dorchester	25 0 0	5 0 0	30 0 0
120	25	Dorking	24 0 0	5 0 0	25 0 0
192	25	Douglas, Isle of Man	25 0 0	8 0 0	30 0 0
209	56½	*Dover*	56 10 0	5 15 0	71 to 72
25	60	Downham	60 0 0	7 10 0	
		Driffield			
		Droitwich			
600	20	*Dudley*	20 0 0	5 0 0	28 to 30
		Droylsden			
1000	10	Dukinfield	6 5 0		
		Dunmow			
250	10	Dunstable	10 0 0	5 0 0	8 0 0
		Durham			
276	9	Dursley, Gloster	9 0 0	5 10 0	8 0 0
300	10	Eastbourne			
		East Grinstead			
		Egremont, Cumbld			
703	6½	Elland	6 10 0	8 0 0	10 0 0
		Ellesmere			
200	10	Emsworth			
400	5	Enfield	5 0 0	5 0 0	5 0 0
300	19	Epsom and Ewell	19 0 0		
		Eton			
		Evesham			
1600	25	*Exeter*	25 0 0	8 0 0	40 to 42
		Exmouth			
		Eye, Suffolk			
150	10	Fairford	10 0 0		
61	25	Fakenham	25 0 0	5 0 0	25 0 0
		Falmouth			
107	30	Fareham	30 0 0	2 10 0	30 0 0
120	25	Farnham	25 0 0	10 0 0	42 0 0
		Farringdon			
		Faversham			
	5	Filey	5 0 0	5 0 0	5 0 0
		Fleetwood			
300	10	Folkestone	10 0 0	10 0 0	15 0 0
240	10	„ new shares	8 0 0	10 0 0	13 0 0
		Fowey			
		Fordingbridge			
240	5	Framlingham	5 0 0	5 0 0	5 10 0
		Frome			
		Gillingham, Dorset			
		Glastonbury			
		Glossop ... £10,000		9 0 0	
1000	25	*Gloucester*	25 0 0	7 10 0	28 0 0
516	5	Gomersal	5 0 0		
		Godalming			
350	10	Gorleston & Southdown	2 10 0		2 10 0
		Gosport			
450	20	Grantham	20 0 0	7 0 0	28 0 0
1000	20	Gravesend	20 0 0	5 0 0	21 0 0
		Grays (Essex)			
1000	10	*Great Grimsby*	9 10 0	8 0 0	13¾ to 14⅝
		Great Torrington			
	25	Guildford	25 0 0	4 0 0	20 0 0
		Guisborough			
		Hadleigh			
		Hailsham			
		Hales Owen			
360	5	Halesworth	5 0 0	7 10 0	5 10 0
600	25	*Halifax*	25 0 0	10 0 0	48 0 0
		Halstead			
		Hampton Court			
1000	10	*Harrogate*	6 5 0	5 0 0	6 5 0
	5	*Hartlepool* £15,137	5 0 0	7 10 0	7 12 6
540	6	Haslingden, Lansh	6 0 0	7 10 0	6 0 0
330	50	Hastings and St. L.	50 0 0	6 0 0	60 0 0
500	5	Havant			
		Haverhill			
		Haworth, Yorks			
		Hayle			
4935	1	Hebden Bridge	12 6		15 0
		Helstone			
250	10	Hemel Hempstead	10 0 0	4 0 0	6 10 0
300	10	Henley-on-Thams.	10 0 0		
		Hereford £5300		4 0 0	
300	10	Herne Bay	10 0 0	6 0 0	11 0 0
270	10	Hexham	10 0 0	7 0 0	12 0 0
400	25	*Heywood*		7 10 0	
		Highworth (Wilts)			
280	10	Hinckley	10 0 0	5 0 0	9 0 0
		Hindley, Lancash.			
200	20	Hitchen	20 0 0	5 0 0	20 0 0
100	10	Hythe & Sandgate	10 0 0	6 0 0	11 0 0
		Hoddesden			
		Holbeach			
		Holmfirth £8880		3 10 0	
		Holyhead			
		Holywell (see Brit. Provincial			
95	25	Honiton	25 0 0	4 0 0	17 0 0
		Horbury			
6	500	Horncastle	500		
1200	2½	Horsforth	2 10 0		2 10 0
128	20	Horsham	20 0 0	5 0 0	
	10	Houghton-le-Sprg.	10 0 0	8 0 0	
		Howden			
		Hull, Sculcoats (see Brit. Provincial)			
		Hull, £11,712. 10s.		5 0 0	
210	10	Hungerford	10 0 0	5 0 0	10 0 0
		Huddersfield			
520	5	High Wycombe	5 0 0	6 0 0	6 16 0
		Idle and Eccleshill			
400	6½	Ilkeston	6 5 0	3 10 0	6 5 0
		Ilminster			
		Ilford			
		Ilfracombe			
		Ironbridge			
1400	10	*Ipswich*	10 0 0	8 0 0	15 0 0
1400	10	„ new shares	7 10 0	8 0 0	12 10 0
800	25	*Isle of Thanet*	20 0 0	5 0 0	20 to 21
		Kendal £9100		8 15 0	
330	10	Kenilworth	7 10 0		7 10 0
400	5	Keswick	5 0 0	4 5 0	4 4 0
100	25	Kettering	25 0 0	5 0 0	25 0 0
		Kidderminster £10000		5 0 0	
		Kimbolton			
		King's Langley			
		Kington, Hereford			
		Kirkby Lonsdale			
		Kirkham, Lanc.			
		Knighton			
		Knutsford			
		Lancaster			
		Llanelly £3000		5 0 0	
		Llandovery			
		Leamington Priors £22,500		6 0 0	
160	10	Leatherhead	10 0 0		
		Ledbury			
		Leeds Old Comp.			
	25	old stk., £60,300	25 0 0	10 0 0	46 to 47
	25	new „ £23,775	25 0 0	6 0 0	29 to 30
	20	*Leeds New* £60,000	20 0 0	10 0 0	36 to 38
3623	10	*Leicester*	10 0 0	7 0 0	15¾ to 16¼
		Leigh (Lancashire)			
135	20	Leighton Buzzard	20 0 0	7 0 0	21 0 0
400	10	Leominster	9 0 0	5 0 0	8 0 0
		Leyburn, Yorksh.			
240	5	Liskeard	5 0 0	8 0 0	6 0 0
330	25	Lewes	25 0 0	5 0 0	25 0 0
320	25	*Lincoln*	25 0 0	10 0 0	48 0 0
		Leyland, Lancash.			
240	5	Littlehampton	5 0 0	7 10 0	5 0 0
250	20	Lichfield	20 0 0	10 0 0	35 0 0
		Liverpool United	100 0 0	10 0 0	188 to 190
		„ ½ sh.	25 0 0	10 0 0	47¼ to 47¾
50	25	Langport	25 0 0	4 0 0	15 0 0
		London Comps.—			
5000	10	Anglo-Romano	10 0 0		10 0 0
5000	20	British Provincial (Holywell, Hull, Norwich, Potteries, Trowbridge)	20 0 0	7 0 0	21 to 22
	20	„ Prov., new	16 0 0	7 0 0	17 to 18
4000	25	*Commercial*	25 0 0	6 0 0	25 to 26
2000	25	„ new shares	2 10 0	6 0 0	partolpm
		„ deb. £12,000			
12,000	50	*Chartered*	50 0 0	4 0 0	34 to 36
6000	50	„ new shares	10 0 0	4 0 0	7 to 7½
2000	150	*City of London*	150 0 0	3 0 0	105 to 110
4000	50	*Equitable*	50 0 0	2 10 0	26 to 28
		„ deb. £47,600			
10,000	20	European— (Amiens, Boulogne, Caen, Havre, Nantes, & Rouen)	20 0 0	5 0 0	14 to 15
		„ do. new	7 10 0	5 0 0	12 10 0
15,000	10	*Gt. Cntl. Consumers* deb. £66,000	10 0 0	7 10 0	11½ to 12

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
8000	50	*Impl. Continental* —First capital (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam)	42 0 0	6 11 0	40 to 45
7000	50	Second capital—(Aix la Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Marseilles, Toulouse Vienna)	41 0 0	10 7 0	68 to 70
	50	Third capital	43 10 0	9 4 0	67 to 69
13,000	50	*Imperial*	50 0 0	6&bon.	86 to 88
4000	40	*Independent*	40 0 0	6 0 0	46 to 47
5000	50	*London*	50 0 0		5 0 0
1000	50	„ (red)	50 0 0		
2000	50	„ (blue)	50 0 0	3 6 0	15 to 18
6000	25	„ (preference)	25 0 0	6 0 0	25 to 26
9000	50	*Phœnix*	19 0 0	3 10 0	26½ to 27½
1000	100	*Ratcliff*	90 0 0	5 0 0	70 to 72
4000	25	*South Metrop.*	25 0 0	5 0 0	21 to 23
7000	10	Surrey Consumers'	10 0 0	7 0 0	10 0 0
9000	50	United Genl. (Cork, Dublin, Limerick)	50 0 0	2 0 0	19 to 20
6410	20	Western A shares	20 0 0	3 0 0	13 to 14
3500	20	„ B „	11 0 0	3 0 0	3 0 0
		Littleborough			
		Lostwithiel			
		Loughborough			
240	25	*Louth*	25 0 0	6 0 0	26 10 0
2500	10	*Lowestoft (& Water)*			
		Llangollen			
611	5	Ludlow Union	5 0 0	5 0 0	5 0 0
		Luton			
		Lutterworth			
63	20	Lyme Regis	20 0 0	4 0 0	20 0 0
120	25	Lymington	25 0 0	5 0 0	25 0 0
200	10	Malmesbury	10 0 0	2 10 0	5 15 0
		Macclesfield 32,000*l*		3 15 0	
		Maidenhead			
300	50	*Maidstone*	50 0 0	10 0 0	90 0 0
160	40	Maldon	23 0 0	5 10 0	24 0 0
		Marlborough			
		Malton (New)			
		Manningtree			
		Mansfield £5000		10 0 0	
150	10	Mansfield Wood-March [house	10 0 0		
		Margate (see I. of T.			
		Market Deeping			
		Market Drayton			
132	25	Market Harboro'	25 0 0	6 0 0	34 0 0
		Market Raisin			
		Market Weighton			
210	10	Marlow	10 0 0	5 0 0	10 0 0
370	10	Maryport	10 0 0	6 0 0	12 0 0
500	5	Matlock Baths	5 0 0		
		Melksham			
		Melton Mowbray			
		Merthyr Tydvil			
50	10	Mere	10 0 0		
		Middleton £9339		5 0 0	
		Midsummer Norton			
		Middlesboro'			
198	5	Mildenhall	5 0 0	5 0 0	5 0 0
700	10	Mitcham	10 0 0	10 0 0	14 10 0
650	5	Mold (and Water)	5 0 0	6 0 0	6 10 0
700	10	Monmouth	10 0 0	5 0 0	
		Monk Wearmouth			
150	10	Moreton in Marsh	10 0 0	3 10 0	
		Morley (nr. Leeds)			
		Mossley			
		Mottram			
220	16	Morpeth	16 0 0	5 0 0	17 10 0
		Nantwich			
		Neath			
183	10	Needham Market	10 0 0	4 0 0	
		Newark £5000		10 0 0	
250	20	Newbury	20 0 0	5 0 0	20 0 0
13,000	5	Newcastle & Gateshead Union	5 0 0	8 0 0	7 12 6
		Newcastle-under-Lyne £6200		4 0 0	
600	5	Newmarket	5 0 0	6 0 0	5 0 0
250	5	Newent	5 0 0		
		New Mills £2115			
		Newport, M. £11720		8 0 0	
320	50	*Newport, Isle of W.*	38 0 0		5 0 0
		Newport Pagnell			
		Newport, Salop			
		New Romney			
		Newton Abbot			
		Newton, Lanc.			
		Newtown (Mutgom.			
		Northallerton			
120	10½	North Walsham	10 10 0	5 0 0	10 10 0
542	20	*Northampton*	18 0 0	10 0 0	31 0 0
		Northwich			
		Norwich (see British Pro. £40,000		7 0 0	
900	50	*Nottingham*	50 0 0	10 0 0	
900	50	New shares		10 0 0	
		Nuneaton			
170	10	Oakham	10 0 0	4 10 0	8 10 0
		Oakhampton			
200	10	Odiham, Hants	10 0 0	4 0 0	10 0 0
		Olney			
100	10	Ongar	10 0 0	2 10 0	5 0 0
658	10	*Ormskirk*	7 10 0	5 0 0	
		Otley, Yorkshire			
80	25	Oundle	25 0 0	7 0 0	25 0 0
120	150	*Oxford*	150 0 0	6 10 0	230 0 0
		Ocer Darwen £8000		5 0 0	
		Padiham			
		Padstow			
		Pately Bridge, Yrk.			
		Peeltown (Man)			
		Pembroke			
250	20	Penrith	15 0 0	6 10 0	21 0 0
		Penryn			
		Penzance			
900	10	Petworth	10 0 0	9 10 0	14 15 0
330	5	Peterafield	5 0 0	4 0 0	5 0 0
		Pickering			
3000	10	*Plymouth*	10 0 0	8 0 0	18 0 0
		Pocklington			
		Pontefract			
		Pontypridd		4 0 0	
400	10	Poole	10 0 0	5 0 0	10 0 0
		Port Madoc			
600	50	*Portsea Island*	53 0 0	5 0 0	50 to 51
		Potton (Beds)			
400	10	Prescott	9 0 0	4 13 4	7 0 0
3000	20	*Preston*	20 0 0	10 0 0	44 0 0
		Pudsey £12,000		5 0 0	
		Pwllheli			
		Quordon & Montsrl			
		Radcliff and Pilkington £9000		4 12 10	
		Ramsay, I. of Man			
		Ramsgate (see I. of T.			
1000	10	*Reading*	10 0 0	4 0 0	7½ to 8
500	20	*Reading Union*	20 0 0	4 0 0	16 0 0
		Redditch			
		Redruth			
		Reigate			
		Retford (East)			
		Rhyl			
		Richmond (Surrey)			
400	5	Rickmansworth	5 0 0		5 0 0
180	10	Ringwood	10 0 0		10 0 0
		Ripon			
		Roches. & Chatham		6 0 0	
		Rochford [£20,000			
		Rockingham			
		Romford			
		Ross			
245	25	*Rotherham*	25 0 0	6 0 0	39 to 40
12½		do. Half Shares	12 10 0	6 0 0	19½ to 20
		Royston			
		Rugby			
500	10	Rugeley	8 10 0	5 0 0	10 10 0
		Runcorn £11,000		7 10 0	
		Ruthin			
500	10	Ryde	10 0 0	6 0 0	12 0 0
		Romsey			
		Saddleworth			
225	20	Saffron Walden	20 0 0	3 15 0	19 0 0
		St. Alban's			
		St. Austel			
		St. Asaph			
		St. Colomb			
		St. Helen's £7520		7 10 0	
		St. Helier's (Jersey)			
		St. Ives, Hunting.			
		St. Ives, Cornwall			
250	10	St. Neot's	10 0 0	8 0 0	12 0 0
		St. Peter's Pt., Guer			
320	25	Salisbury [usey	25 0 0	6 0 0	28 to 30
317	10	Sandbach	10 0 0	5 0 0	12 0 0
140	10	Saxmundham	10 0 0	5 0 0	10 0 0
		Scarborough	10 0 0		13 0 0
201	5	Sedburgh	5 0 0	2 10 0	4 15 0
300	15	Selby	16 0 0	5 0 0	16 0 0
		Settle			
290	10	Sevenoaks	10 0 0	4 0 0	10 0 0
250	10	Shaftesbury	10 0 0	3 0 0	9 0 0
5400	25	*Sheffield United*	24 0 0	7 10 0	26 to 28
		Shelton, Pott. (s. B. P			
		Shepton Mallet			
600	5	Sherborne	5 6 0	5 6 0	5 0 0
2914	5	Shields (Tynemth.	5 0 0	5 0 0	5 17 6
		Shields (South)			
		Shiffnal, Salop			
1000	5	*Shipley*	5 0 0	6 0 0	7 10 0
157	10	Shipston-on-Stour	10 0 0	5 0 0	10 0 0
		Shoreham			
		Shrewsbury £10,000		7 0 0	
400	10	Skipton	10 0 0	4 0 0	11 0 0
		Sleaford			
250	10	Slough	10 0 0		
		Snaith			
		Soham			
		Southam	5 0 0		
		Southend, Essex			
400	5	Southwold [Bdge)	5 0 0	5 0 0	5 0 0
2000	5	South Essex (Lea			
		South Molton			
1000	50	*Southampton*	32 0 0	5 0 0	
220	10	Southwell	10 0 0	4 0 0	
		Sowerby, Yorksh.			
		Spittal (Berwick-Spilsby [on Tweed)	5 0 0		
400	5	Staindrop			
		Stretford			
		Stokesly			
		Stafford £10,000		5 0 0	
		Staines and Egham			
		Staley Bdg. £15,000		10 0 0	
225	50	*Stamford*	50 0 0	4 0 0	48 0 0
810	9½	*Stockton-on-Tees*	9 10 0	9 0 0	11 to 12
1000	10	Stoke-upon-Trent	10 0 0	7 0 0	12 15 0
500	10	„ new shares	8 0 0	7 0 0	10 10 0
		Stone, Stafford			
		Stoney Stratford			
		Stourbridge			
		Stowmarket			
150	20	Stratford-on-Avon	20 0 0	7 10 0	30 0 0
		Stroud			
169	10	Swaffham	10 0 0	5 0 0	5 10 0
		Swansea £9000			
		Sudbury			
		Sunderland, old			
6400	5	*Sunderland*, new	5 0 0	6 0 0	6 12 6
200	10	Sutton Coldfield	10 0 0		
		Sutton (Surrey)			
250	10	Sutton-in-Ashfield	10 0 0	5 0 0	10 0 0
		Sutton Southcoates & Drypool (Hull)	20 0 0		23 to 24
		Swindon			
1000	10	Sydenham	10 0 0		
2800	5	*Taunton*	5 0 0	6 0 0	6 0 0
		Tadcaster			
		Tamworth			
		Tavistock			
200	5	Tenbury	5 0 0	5 0 0	5 0 0
		Tenby			
150	10	Tenterden	10 0 0	4 0 0	8 0 0
		Tetbury, Gloster.			
		Tewkesbury			
200	10	Thame	10 0 0	5 0 0	10 0 0
230	10	Thetford	10 0 0	6 0 0	10 10 0
		Thirsk			
		Thornbury			
		Thorne			
111	10	Tiverton	10 0 0	10 0 0	17 to 18
1141	5	Todmorden	5 0 0	5 0 0	6 0 0
600	2½	Topsham	2 10 0		3 0 0
		Torquay			
		Torrington, Devon			
		Totnes			
		Totnes Consumers			
4000	5	Tottenham	3 15 0	8 0 0	4 0 0
		Towcester			
		Town-Malling			
200	10	Tring	10 0 0	5 0 0	10 0 0
		Trowbridge (see			
75	50	Truro [Brit. P.)	50 0 0	5 0 0	
		Tunbridge			
		Tunbridge Wells			
		Tuxford			
		Ulverston			
		Uppingham			
210	5	Upton-on-Severn	5 0 0	5 0 0	5 0 0
		Usk			
		Uttoxeter			
		Uxbridge			
		Ventnor			
1000	25	*Wakefield*, old capl	25 0 0	8 0 0	35 0 0
1600	5	„ new „	5 0 0	8 0 0	7 0 0
		Wallasey			
300	10	Wallingford	10 0 0	5 0 0	8 0 0
994	10	Wandsworth	10 0 0	5 0 0	11 0 0
200	10	Wantage	9 0 0	5 0 0	10 10 0
20		*Warrington* £23304	20 0 0	10 0 0	28 to 29
100	10	Wareham	10 0 0	3 10 0	8 0 0
		Warkworth			
120	25	Warminster	25 0 0	5 0 0	27 0 0
		Warth			
		Warwick £15,000		6 0 0	
		Watford			
111	25	Welchpool, Mntgy.	25 0 0	5 0 0	25 0 0
		Wellingborough			
100	24	Wellington, Salop	24 0 0	7 10 0	24 0 0
		Wellington, Somers			
160	25	*Wells, Surst.* £5000	25 0 0	10 0 0	32 to 34
		Westbury			
		Weston-sup.-Mare			
2600	5	West Ham	5 0 0	5 0 0	5 0 0
		Wetherby			
		Whitby			
		Whitehaven			
		Whitstable			
250	10	Whittlesea	10 0 0	5 0 0	11 0 0
1216	10	*Wigan*	10 0 0	10 0 0	22 0 0
		Willenhall			
		Wilton			
111	10	Winslow	10 0 0	5 0 0	10 0 0
240	10	Wimborne Minster	10 0 0		
600	10	Wimbledon	8 0 0		8 0 0
		Wincanton			
380	50	Winchester	50 0 0	5 0 0	50 0 0
900	12½	Windsor	12 10 0	10 0 0	23 0 0
		Witham			
		Witney			
4480	10	*Wolverhampton*	10 0 0	9 0 0	19 to 19½
4480	10	do. new shares	1 5 0	9 0 0	4 5 0
		do. deb. £10,000			
200	10	Woburn	10 0 0	5 0 0	10 0 0
210	10	Wokingham	10 0 0	4 0 0	10 0 0
12	500	Woodbridge	500 0 0	5 0 0	
600	2½	Woodstock	2 10 0		2 15 0
		Wooler			
		Wotton-un.-Edge			
2900	10	*Worcester*	10 0 0	8 0 0	14 5 0
		Workington			
		Worksop & Radford			
200	10	Wirksworth	10 0 0	5 0 0	10 0 0
		Worthing			
		Wrexham			
1800	10	Woolwich Equitbl.	10 0 0	5 0 0	10 2 6
		Woolwich Consms.			
		Woolwich (North)			
		Wymondham			
795	20	Yarmouth	20 0 0	5 0 0	17 to 18
		Yeadon, near Leeds			
140	30	Yeovil	30 0 0	5 0 0	30 0 0
	5	*York Untd.* £55,000	5 0 0	6 0 0	7 10 0

SCOTLAND.

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
13,000	5	Aberdeen	3 11 0	7 0 0	4 10 0
420	10	Airdrie	10 0 0	7 10 0	12 10 0
		Alloa			
		Annan			
1300	1	Anstruther	1 0 0	7 10 0	1 2 0
100	20	Ardrossan	20 0 0	4 0 0	20 0 0
550	20	Arbroath	20 0 0	7 10 0	30 0 0
381	5	Auchterarder	5 0 0	7 10 0	7 0 0
750	2	Auchtermuchty	2 0 0	6 0 0	2 10 0
2566	5	Ayr, old	5 0 0	6 0 0	6 0 0
2500	2	Ditto, new	2 0 0	6 0 0	2 0 0
250	10	Banff	10 0 0	9 10 0	10 12 6
		Barrhead			
		Bathgate			
		Beith			
1000	1	Bervie	1 0 0		1 0 0
		Biggar			
739	5	Blairgowrie	5 0 0	8 0 0	7 0 0
400	6	Borrowstowness	6 0 0	5 0 0	8 0 0
540	5	Brechin	5 0 0	8 10 0	9 0 0
		Bridge of Allan			
2250	2	Brougthy Ferry	2 0 0	5 0 0	2 0
		Burntisland			
		Campbelton			
		Carluke (Lanark)			
		Clackmannan			

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
1333	3	Coatbridge	3 0 0	10 0 0	4 0 0
		Coldstream			
		Collinsburgh			
		Comrie			
2744	1	Crieff	1 0 0		1 0 0
		Crail, Fife			
600	1	Cullen	1 0 0	5 0 0	15 0
		Cumbernauld			
200	6	Cumnock	6 0 0	5 0 0	6 0 0
600	5	Cupar Angus	5 0 0	7 0 0	7 3 0
250	10	Cupar Fife	10 0 0	7 10 0	15 0 0
		Dalkeith			
750	2	Denny			
		Dingwall			
		Dornoch			
500	1	Douglas	1 0 0	6 0 0	1 1 0
		Dufftown			
		Dumbarton			
400	70	Dumfries	70 0 0	5 0 0	70 0 0
		Dunbar			
560	2½	Dunblane	2 10 0	4 0 0	2 10 0
	23¾	*Dundee*, old £29,687	23 15 0	8 8 0	30 10 0
8000	5	*Dundee, new*	5 0 0	4 6 0	4 15 0
860	10	Dunfermline	10 0 0	7 10 0	15 0 0
		Dunkeld			
1000	2	Dunoon	2 0 0		2 0 0
		Dunse			
250	5	Dysart	5 0 0	7 10 0	6 0 0
6000	25	*Edinburgh Gas Co.*	25 0 0	10 0 0	56½ to 57
5480	25	„ *and Leith Co.*	25 0 0	10 0 0	53 0 0
		Elie			
455	11¼	Elgin	11 10 0	6 0 0	11 10 0
		Falkirk, old			
		„ new			
		Falkland			
		Ferry Port on Craig			
600	1	Fochabers	1 0 0		1 0 0
1440	5	Forfar	5 0 0	7 10 0	7 19 0
		Fort William			
2000	16s.	Fraserburgh	16 0	5 0 0	16 0
500	5	Galashiels	5 0 0	10 0 0	9 10 0
		Garlieston			
		Gatehouse n. Fleet			
900	2½	Girvan	2 10 0	6 0 0	2 10 0
6000	25	*Glasgow*	25 0 0	10 0 0	54 0 0
15000	10	*Glasg. City & Suburb.*	10 0 0	10 0 0	19 10 0
		Grangemouth			
		Grahamston			
	8¼	Haddington	8 10 0	7 10 0	12 10 0
1600	5	*Hamilton*	5 0 0	10 0 0	8 3 0
440	5	Hawick	5 0 0	7 10 0	7 10 0
300	5	Helensburgh	5 0 0	7 10 0	7 10 0
1312	1	Huntly	1 0 0	7 10 0	1 1 0
250	5	Inverary	5 0 0	10 0 0	6 12 6
425	1	Inverkeithing	1 0 0	5 0 0	1 0 0
1200	10	*Invern. Gas & Water*	10 0 0	7 0 0	14 0 0
2400	5	„ new shares	1 5 0	7 0 0	2 0 0
310	10	Irvine	10 0 0	10 0 0	15 0 0
		Jedburgh			
		Johnstone (Paisley)			
		Keith			
		Kelso		10 0 0	
		Kilmarnock			
339	5	Kincardine	5 0 0	2 10 0	4 5 6
		Kinghorn			
		Kingskittlo, Fife			
		Kinross			
120	5	Kirkaldy	5 0 0	10 0 0	8 10 0
320	5	Kirkcudbright	5 0 0	5 0 0	5 0 0
1000	3	Kirkintulloch, near	3 0 0	5 0 0	3 0 0
227	5	Kirkwall... [Glasg.	5 0 0	5 0 0	4 10 0
518	5	Kirriemuir	5 0 0	6 0 0	
		Lanark			
		Largo, near Leven			
280	5	Largs	5 0 0	7 10 0	7 to 8
		Lasswade, n. Edin.			
177	5	Lauder	5 0 0	5 0 0	5 0 0
		Leith			
1879	1	Leslie, Fife	1 0 0	7 10 0	1 8 0
614	1	Lesmahago	1 0 0	6 0 0	1 0 0
1500	1	Leven	1 0 0	5 0 0	1 2 0
100	10	Linlithgow	10 0 0	7 10 0	15 0 0
		Linton, n. Nobleh.			
		Lochee, n. Dundee			
240	5	Lochgilphead	5 0 0	7 10 0	5 5 0
		Lochwinnock, near			
1200	1	Markinch, [Paisley	1 0 0	7 10 0	1 5 0
282	3	Mauchline [Dumf.	3 0 0	5 0 0	3 0 0
		Maxwell-town, n.			
423	5	Maybole, Ayrshire	5 0 0	4 10 0	5 0 0
		Maryhill, n. Glasg.			
373	2	Melrose	2 0 0	7 10 0	2 0 0
718	2	Mid & East Calder	2 0 0		2 0 0
200	5	Moffat	5 0 0	5 0 0	5 0 0
400	20	Montrose	20 0 0	10 0 0	35 0 0
		Musselburgh			
618	1	Nairn	1 0 0	5 0 0	1 0 0
		Neilston, n. Glasg.			
1056	1	Newmills, near Kilmarnock	1 0 0	5 0 0	1 0 0
		Newburgh, Fife			
		Newton-on-Ayre			
107	14½	Newton Stewart	14 10 0	5 0 0	14 10 0
		North Berwick, n. Haddington			
		North Queensferry			
245	5	Oban	5 0 0	7 10 0	5 0 0
194	5	Peebles	5 0 0	5 0 0	5 0 0
800	25	Perth	25 0 0	4 16 0	22 10 0
	5	„ new	5 0 0	2 10 0	4 2 6
		Peterhead			
		Pittenweem			
2416	1	Pollokshaws, n Glsg	1 0 0	7 10 0	1 5 0
		Port Glasgow			
		Portobello, n. Edin.			
200	5	Prestonpans	5 0 0	6 0 0	5 0 0
1500	1¼	Rutherglen, nGlasg	1 6 8	5 0 0	1 6 8
		Renfrew, n. Paisley			
		Saltcoats			
951	1	Sanquhar	1 0 0	5 0 0	1 0 0
		Selkirk			
		South Queensferry			
448	12	St. Andrew's	12 0 0	6 0 0	14 0 0
200	8	Stewarton	8 0 0	5 0 0	8 0 0
7330	2	Stirling	2 0 0	8 0 0	2 12 0
2500	1	Stonehaven	1 0 0	6 5 0	1 6 0
		Stonhouse, Laurks.			
600	2½	Stornoway	2 10 0		2 15 0
420	5	Stranraer	5 0 0	7 10 0	5 to 5½
604	2	Strathaven, near	2 0 0	8 0 0	2 15 0
643	2½	Thurso... [Hamltn	2 10 0	4 0 0	2 10 0
		Tillicoultry, n. Alloa			
800	1	Tranent	1 0 0	5 0 0	1 0 0
		Troon			
		Wick			
		Wigton... [haven			
2051	1	Wemyss and Buck-	1 0 0	6 0 0	1 2 0

IRELAND.

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
300	10	Armagh	10 0 0	10 0 0	20 0 0
		Ballinasloe			
700	80	*Belfast*	80 0 0	7 10 0	80 0 0
51	5	Ballymena	5 0 0	10 0 0	
		Ballymoney			
150	5	Ballynahinch	5 0 0		5 0 0
		Carrickfergus			
1100	5	Carlow	5 0 0		4 10 0
400	5	Cavan	5 0 0		5 0 0
		Cork (see Un. Gen.)			
		Cookstown			
1300	5	Clonmel Consumrs	5 0 0	5 0 0	5 0 0
		Drogheda			
19,000	10	*Dublin Consumers*	6 0 0	7 0 0	8 10 0
		Dublin Hibernian			
160	25	Dundalk [(see U.G.	25 0 0	5 0 0	25 0 0
200	10	Dungannon	10 0 0	7 10 0	12 10 0
871	5	*Downpatrick*	5 0 0	4 0 0	5 0 0
		Enniskillen			
		Enniscorthy			
240	25	Galway	25 0 0	10 0 0	37 10 0
		Keady			
400	10	Kilkenny	10 0 0	8 0 0	11 5 0
		Killarney			
		Larne			
		Limerick (see U.G.)			
1725	5	Limerick Consum.	5 0 0		
		Lismore			
600	15	Londonderry	15 0 0	6 13 4	21 10 0
		Louth			
500	7	Lisburn	7 0 0	7 10 0	8 5 0
520	10	Lurgan	6 0 0	6 0 0	6 0 0
		Mallow			
		Monaghan			
		Nenagh			
448	5	Newtownards	5 0 0	6 0 0	6 15 0
		Newtownlimavady			
750	20	Newry	20 0 0	5 0 0	20 0 0
425	5	Omagh	5 0 0		5 0 0
125	20	Portadown	20 0 0	5 0 0	20 0 0
		Portaferry			
600	10	Sligo	10 0 0	2 10 0	7 0 0
		Tralee			
		Waterford			

The Gas Works in the undermentioned towns belong to private individuals:—

Abergavenny.	Chester (Roodee).	Fermoy.	Hunmanby.	Northfleet.	Sandwich.	Waltham Abbey.
Barnet.	Chertsey.	Gainsborough.	Huntingdon.	Newport I. W. (new).	Seaham Harbour.	Ware. (2 works)
Beccles.	Crewkerne.	Goole.	Hyde (Cheshire).	Oswestry.	Sheerness.	Wem.
Blaydon, n. Newcastle.	Dartmouth.	Harleston.	Kingston-on-Thames.	Parsonstown.	Sidmouth.	Wexford.
Bridgenorth.	Eltham.	Hatfield.	Leiston (Suffolk).	Peterborough.	Sittingbourne.	Weymouth.
Brompton & Gillingham	Ely.	Hertford.	Lynn.	Pontypool.	Spalding.	Whitchurch (Salop).
Bungay.	Farsley.	Holt.	New Ross.	Rye.	Tipperary.	Wisbeach.
Carnarvon.						

The Gas Works belong to the Corporations, or to Commissioners acting under special acts of Parliament, in the following towns:—

Beverley.	Doncaster.	Keighly.	Manchester.	Richmond (Yorkshire).	Southport (Lanc.)	Trim (Meath).
Blackpool.	Great Malvern.	Knaresborough.	Milton (Kent).	Rochdale.	Stockport	Walsall.
Carlisle.	Greenock.	Leek.	Oldham.	Rothesay.	Strabane.	Wells (Norfolk).
Cashel.	Haverfordwest.	Lytham (Lanc.)	Paisley.	Salford.	Teignmouth.	Youghall.
Coleraine.						

Price Current.

CASTINGS, per Ton.

Average Weight of Cast Iron Gas Pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.

	London.	Glasgow	Newcastle.	Wales.	Yorksh., Derbysh. and Staffrdsh.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Pig Iron, No. 1	5 5 0	4 10 0	4 10 0	4 15 0	5 0 0
1¼ and 2 inches Socket Pipes	9 2 6	8 5 0	8 5 0	8 10 0	8 10 0
2½ and 3 do. do.	8 17 6	8 0 0	8 0 0	8 5 0	8 5 0
4 and 5 do. do.	8 12 6	7 15 0	7 15 0	8 0 0	8 0 0
6 inches and upwards do.	8 7 6	7 10 0	7 10 0	7 15 0	7 15 0
Extra for bends, branches, and connection	2 10 0	2 10 0	2 10 0	2 10 0	2 10 0
Retorts, 2nd fusion, hot blast	8 5 0	7 7 6	7 7 6	7 12 6	7 12 6
Do. 2nd fusion, cold blast	8 15 0	..	7 17 6	8 2 6	8 2 6
Tank Plates, ⅜ thick and above	8 10 0	7 12 6	7 12 6	7 17 6	7 17 6
Do. less than ⅜	9 0 0	8 0 0	8 0 0	8 5 0	8 5 0
Plain Castings ex. models	8 15 0	7 17 6	7 17 6	8 2 6	8 2 6

COALS.

NEWCASTLE. Unscreened.	s.	d.		DERBYSHIRE.		
Whitwell Primrose	7	6	per ton.	Clay Cross, Deep Main, and New Birchwood	8s.	6d. per ton.
Dean's Primrose			„	SCOTCH CANNEL.		
Pelton	8	0	„	Boghead at Leith	27	0 „
Brancepeth			„	Kirkness best	23	0 „
Medomsley			„	Capeldrae, first quality	20	0 „
Pelaw	8	3	„	Ditto, second quality	12	6 „
Burnhope				Lothian	20	0 „
Eighton Moor				Lesmahago at Glasgow	23	0 „
Felling Main				Ditto at Grangemouth	25	0 „
New Pelton				Arniston	22	0 „
Peareth	8	6	„	Wemyss ... (at the pits)	16	0 „
South Pelaw				Bridgeness	17	0 „
Waldridge				Kinneil		
Washington Hutton				Knightswood	18	0 „
South Peareth				Lochgelly	12	6 „
Ramsay's Cannel	16	0	„	Lumphinan		
Cowen's Cannel	16	0	„	Methill	11	0 „

FIRE GOODS.

Best Bricks, 60s. per 1000, at Newcastle.
Do. Clay, 14s. per ton do.

LEAD.

Soft pig, £25 to £26 per ton.

WROUGHT IRON TUBING, subject to 25 per cent. Discount.

	2 inches.	1½ inch.	1¼ inch.	1 inch.	¾ inch.	½ inch.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent welded tubes, from 2 to 12 feet, per foot	1 8	1 0	0 10	0 7	0 5	0 4½
Ditto „ 6 in. to 18 in., each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting pieces, or long screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, springs, and elbows, wrought iron	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, wrought or cast	4 6	3 0	2 6	2 0	1 6	1 2
Iron cocks	17 6	9 6	7	4 6	3 3	2 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing sockets, caps, plugs, and nipples	1 3	0 9	0 8	0 6	0 5	0 4
Plain sockets	1 0	0 8	0 7	0 5	0 4	0 3
Flanches	1 9	1 6	1 3	1 0	0 9	
Syphons, 2 quart	15 0	14 0	13 0	12 0		
Ditto 1 quart	11 6	10 6	10 3	10 0	9 6	

FREIGHTS, per Ton.

Coastwise—Newcastle.		*Foreign.*	
Chatham & Roches.	8s. 0d	Boulogne	9s. 0d
Cork	12 6	Barcelona	33 0
Dover	9 0	Bordeaux	18 0
Dublin	12 6	Cadiz	19 6
Exeter Quay	9 6	Calais	9 0
Folkestone	8 9	Constantinople	43 0
Hastings	10 6	Dieppe	10 0
Jersey	11 0	Genoa	33 0
London	8 0	Hamburg	10 6
Lowestoft & Yarmouth	5 9	Havanna	20 0
Lynn	8 0	Havre	11 0
Margate	8 6	Leghorn	33 0
Portsmouth	10 0	Lisbon	17 0
Plymouth	9 6	Rotterdam	10 6
Whitstable	8 0	Stettin	9 3
Weymouth	10 0	Trieste and Venice	44 0